

# The Boston Medical and Surgical Journal

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## Original Articles.

### CONFERENCE OF MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

(Series continued from page 531.)

#### IV.

#### PREVENTABLE FORMS OF MENTAL DISEASE AND HOW TO PREVENT THEM.\*

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INSANITY is widespread. At the time of the last national census (1910) there were more insane in hospitals than there were students in the colleges and universities of the country.

The cost of caring for them was nearly \$33,000,000 a year. The economic loss due to their being unable to work was estimated at more than \$130,000,000 annually—the total cost of insanity being equal to the value of the combined annual exports of wheat, corn, tobacco and dairy and beef products, nearly \$163,000,000.

In Massachusetts last fall (i.e., Oct. 1, 1914) there were over 15,000 (15,066) insane persons in public or private hospitals or on temporary leave from them. There may be some 3,000 to 4,000 milder cases taken care of at home. Over 4,000 cases were admitted to hospitals during the preceding year. That year (1914) the cost to the State for care of the insane and upkeep

\* \* Address prepared as part of the educational propaganda of the Massachusetts Society for Mental Hygiene, and read in whole or in part before lay audiences.

and improvements of the buildings was nearly four and a half million dollars (\$4,468,291.31), about a seventh of the total State expenditures. The cost of care in the private hospitals was probably in the vicinity of half a million dollars for the same period.

Thus insanity costs citizens of this State between four and five million dollars a year for care alone; if to that is added the loss due to unemployment on account of it, the sum would reach eighteen or nineteen million dollars.

These figures do not include the feeble-minded, of whom it is estimated that there are over 14,000 in this State, and of whom the State takes care of only about 2,500, at a cost of nearly two-thirds of a million dollars. Nor do they include the inebriates and epileptics, about whom I shall say little or nothing.

Cannot we prevent some of this great loss, to say nothing of the distress that inevitably accompanies it and its cause.

If we are going to prevent insanity, we must know its causes and why people are subjected to them. Then we can know what to work at, and how to work.

There are many different forms of mental disease, or psychoses, as we call them, but for the purposes of this paper they can be put into a few great groups. We shall see that some forms are wholly, some partly, and some not at all preventable in the present state of our knowledge.

The great groups of psychoses are:—

1. That due to defective mental development—the feeble-minded.
2. Dementia praecox.

3. The manic-depressive psychoses.
4. The psychoses due to destructive diseases of the brain.
5. The toxic psychoses, and
6. A more or less heterogeneous group.

#### Feeble-mindedness.

I. The largest group is that due to developmental defects, showing all grades of feeble-mindedness from the idiot and imbecile to the moron and the so-called psychopathically inferior person, or psychopath; both of the latter might pass in a crowd for normal, and they furnish a large proportion of the so-called white slave class and of the defective delinquents who contribute largely to the population of our reformatories and prisons.

Dr. Walter E. Fernald has said and written so much and so eloquently of the needs of this great group, that I will say only a few words about the prevention.

Head injuries during birth or in infancy and childhood, acute inflammations of the brain, or its coverings, and certain rare bodily diseases are responsible for a small proportion of cases. Marked fatigue, illness or physical exhaustion of one or both parents at the time of conception may be a cause of imperfect development of the child. Alcoholism and venereal disease, especially syphilis, in one or both parents, are undoubtedly causes of no inconsiderable amount of feeble-mindedness in the offspring.

Eugenics would require that the parents be well, unfatigued, and free from alcoholism at the time of conception.

By far the largest number (probably 80%) of feeble-minded persons have inherited the defect from one or both parents or grandparents. Feeble-mindedness in the parents is the chief cause of feeble-mindedness in the child. To prevent it in children, matings of defective persons must be prevented, for such persons have little or no sense of responsibility, and are prolific, and many of the children procreated by and born to them are born out of wedlock. Sterilization by one method or another has been advocated, but by far the best and most effective prevention is segregation in schools and colonies for the feeble-minded, especially of the moron girls and women during the period when they are capable of bearing children.

I speak of segregating the women especially, because the male defective is of comparatively little menace to society in this particular respect.

In order that proper segregation may be accomplished in this state, new schools and colonies need to be established or the present ones greatly enlarged. The former is the better plan. The present schools are over-crowded and inadequate to take all who should go there. It is largely a matter of legislation and expense. If every parent who has a feeble-minded child which cannot be admitted to the existing schools

for lack of room should talk to the representative of his district, not to try to get the child admitted through political pull, but to urge the necessary legislation and appropriation, the amount of such pressure would be so great that the legislators would feel obliged to take suitable action. It is not sufficient that the organizations interested in the matter should talk about it and urge it; it needs the local push on the representative of the district, by the voter in the district, as well.

#### INSANITY.

The rest of the psychoses which I shall take up are mental diseases which occur in persons who were previously normal.

II. *Dementia Praecox.* Of the patients admitted to the hospitals for the insane, nearly a quarter (about 24%) are cases of what we call dementia praecox. It is a form of insanity which comes on in the earlier years of life, usually between the ages of adolescence and 30 or 35; in general it is characterized by the tendency of the patient to withdraw into himself, avoid contacts with the world about him, and give himself up to day dreams about which he is reticent. He is resentful of efforts to draw him out. There are, of course, a good many different manifestations of the illness, and this description is only a very general one, to which there are many seeming exceptions. The patient early becomes more or less demented, incapable of taking his normal place in life, though sometimes capable of routine work under direction, but on a lower level than his former one. Usually he needs hospital care for life, and as he is likely to live as long as he would have if he hadn't become ill, if not longer, cases of this kind accumulate in the hospitals faster than they can be discharged. Thus they make up a large part of the hospital population, and also they make it necessary to provide hospital accommodations more rapidly in proportion to the growth of general population, with the result that insanity appears to be increasing in the community faster than it really is.

In spite of its frequency, we know very little really about the causes of dementia praecox, and hence we do not know where to aim our efforts to prevent it. There are different theories, most of them, thus far, unconfirmed. Some think that there is an actual disease of some portion of the brain substance; others that there is faulty action of some of the glands of internal secretion, as they are called, especially the thyroid and sex glands; still others that emotional states may interfere with the proper working of these glands. But it is all vague, indefinite, quite unproved, and gives us little at present on which to work for prevention.

Another theory lays stress on mental factors as causes, regarding the mental symptoms as outgrowths from and developments of faulty ways of meeting difficulties, shown even early in childhood. This theory is based largely on the

fact that a very much larger number of dementia praecox cases than of the other psychoses give a history of showing these faulty habits of adjustment. So it is thought that children with a type of make-up in which these ways are prominent are more likely than others to develop dementia praecox in later years. I cannot help thinking that this make-up, which I shall presently describe, is inadequate to account wholly for the disease, but in a fairly large proportion of cases it may be one of the important contributing factors.

If this theory be true, or partly true, an indefinite number of persons may be prevented from developing dementia praecox, and certainly they will lead happier, more efficient lives, if they can be taught in childhood and youth to adopt more healthy attitudes toward life. The normal child plays happily or even aggressively with others, occupies itself with concrete and objective things and interests, takes the knocks and disappointments of life casually and without prolonged rancor, confides freely and openly with parents and companions, and happily substitutes another occupation for one that is forbidden or at the time unavailable or inadvisable. If, instead of this, a child keeps by itself; does not seem able to get on common ground with other children; gets absorbed in its own day dreams and fancies and resents being called out of them; is sensitive and takes knocks and disappointments as slurs or injustices, resents them, broods over them and regards itself as a martyr; nurses its grievances in its own breast, not confiding its troubles to others but continuing the sense of injury and injustice; in general keeps its thoughts to itself; and when its chosen occupation is denied it, goes off by itself with a sense of injury and does not try to take up another, but lets the mind dwell on unproductive fancies and vague, impractical aspirations—such a child is more likely than the others to have dementia praecox.

We all of us have some of these, and other similar tendencies, mixed with the more frank outspoken and objective ones. It is rather when a person has so many of them as to dominate the personality, make it noticeably different from the average—so that we are apt, without defining just why, to say that the child or person is "odd" or "queer" or "different from the others"—that these traits may become the foundation of dementia praecox.

The best way we know to prevent this psychosis is for parents and teachers to begin at the first appearance of these traits, perhaps even as early as infancy, and to continue till adult life, to make unremitting, tactful and sympathetic efforts to get into the little mind, to understand its point of view, to suggest happier and healthier ones, to lead the child to more objective and so more healthful contacts and interests, to teach more practical substitutions and aims, better ways of reacting and better attitudes

toward persons and life. It must be remembered that these better ways cannot be imposed upon the child from without, but the seed must be planted and must grow from within, if the reformation is to be accomplished, and the faulty habits of adjustment are to be overcome. What proportion of cases can be thus prevented we have as yet no means of knowing.

III. *Manic-depressive psychoses.* Probably from a sixth to a fifth (16-20%) of the yearly admissions to the hospitals for the insane are due to breakdowns in persons who were unable to withstand the hard continuous work, or the exhaustion of illness and pain, or the sudden and intense or the long continued stress of conflicts between opposing desires, ambitions and duties, or the strain of prolonged responsibility, or the various combinations of these that life held for them.

Most of these cases we class under the manic-depressive psychoses—the old-fashioned mania, melancholia and circular insanity. Some of these and a great many other cases, milder than those who need hospital care, are often called nervous prostration, neurasthenia, psychasthenia, and psychoneurosis. The great majority of patients ill with these psychoses get completely well of the attack, but many are liable to recurrences under unfavorable conditions. Any given attack may last only a few weeks, or it may be prolonged even for several years, yet with eventual recovery.

The causes of this lack of endurance, and hence these attacks, are to be found partly in the bodies and tendencies we inherit from our ancestors. But age has its effect—we cannot lead such strenuous lives after 50 as we could in youth. And physical illnesses and unwise habits of living will increase our fatigability, and lessen our capacity to stand stress and strain.

Personally I always think of these forms of mental disease as *fatigue* psychoses, and treat them on that basis, not only because they begin with the manifestations of ordinary normal tire, such as we all experience, but because the symptoms seem to be developments, exaggerations, and consequences of the same manifestations. I do this in spite of the fact that in a certain proportion of cases the fatiguing factors are difficult to discover; that in many cases the attacks come on in spite of efforts to secure the best living conditions for the patient; and that in many the attack seems to run its course regardless of all we know how to do to shorten it.

I use the word *fatigue* in a broad sense, to include not only the effects of long hours or of hard physical or mental work, but those of enduring long continued nagging pain or physical discomfort, of the weakness accompanying or following illnesses or surgical operations or childbirth, and also the effects of carrying responsibility, of suffering great griefs or anxieties, or of enduring the great disappointments, the internal conflicts between duties and desires,

the thwarting of deeply cherished hopes and ambitions. These have a wearing effect on us, "take something out of" us, lessen our working energies, and produce results much like those of normal mental fatigue.

Just as we differ from one another in form and feature and in personality, so we differ somewhat in the ways in which we show normal as well as pathological fatigue. When we are tired we cannot think as well or as quickly or as long on any one topic, our judgment is not so good, we cannot see so many sides to the matter we are trying to consider; but in some of us thoughts come up slowly and with difficulty, with others they crowd and rush in great profusion; in some of us decisions are hard to make, while others make quick but superficial plans, decisions and judgments. But we all work less accurately, and less effectively. Some of us find it hard to keep ourselves at work just because everything is an effort, others because we are easily distracted and so go aimlessly from one thing to another; some of us move and think slowly, others in a quick, nervous, tense way. Some of us feel unequal to doing things, feel sober, glum, even depressed, cautious, apprehensive; others feel reckless, laugh easily, "get the sillies," make puns or poor jokes. We lose control of our emotions, and get irritable or angry or laugh inordinately at trivial things. Some of us feel tired and languid, want to rest and be let alone, don't take so much interest in things going on about us, while others of us want to be doing something all the time, or feel that we must keep at our task and put it through, though we accomplish little, or work "on our nerves," as it is often popularly expressed. We are apt to forget daily or customary things, and find it harder to memorize things and to recall things, such as names. Some of us have feelings of tightness or tension in the head, or headache. Some get sleepy, others wakeful, and when awake keep going over and over the same problem without reaching conclusions. Some of us, if we sleep, dream of being in difficulties and of everything going wrong in trying to get out of them. The appetite is not so good, there is apt to be a sense of being filled up, the bowels are sluggish, the respirations are shallower, the heart is more rapid, even to giving a feeling of palpitation, the head feels hot, and the feet and hands cold.

These are the chief effects of fatigue,—there are infinite variations, combinations and modifications of them. We do not all have all of them, and each of us has at one time some, at another time others.

The fatigue psychoses begin with some of these manifestations, and, if the conditions which cause the fatigue persist, the symptoms grow worse and develop into the depressions, the excitements, or the stuporous and sometimes delirious and delusional states of the manic-depressive psychoses.

Why do people get over-tired?  
Because they don't get rest enough.  
But why don't they do that?

Sometimes they cannot, because with small incomes and large families the work *must* be done and there is no one else to do it, or they have to support others, or a sudden business reverse or other misfortune has befallen them, so that they have to keep at work, or they have to stand domestic strains which they cannot escape. But more often they only *think* they cannot stop to rest,—when the actual breakdown comes they have to stop, and it would have been no harder and much more economical of time and money if they had stopped before the breakdown. Often people deceive themselves, thinking they will find a more convenient time to rest by and by, but they rarely do; or they think they can stand the work a little longer, or that they have always been well and can't break down. Boys and girls in school and college are sometimes ambitious, or their parents and teachers are ambitious for them, and they over-work and under-rest. Often people do not know when they are tired, not recognizing the significance of the way they feel. And some, who fatigue easily, though they may look the picture of health, are goaded and shamed by their friends or by their New England consciences into over-doing.

Let me quote a true statement from a trade journal on "Going to Bed Tired."

"What used to be thought a virtue turns out to be one of mankind's worst vices—the habit of working beyond the fatigue point. Many men and women still pride themselves on being dreadfully tired when bed-time comes; they ought in reality to be ashamed of themselves. It is one thing—and a good thing—to work hard and systematically during regular hours. It is a crime against one's own life—and in the case of young women, against the lives of the next generation—to work or play so as to be persistently tired. Just when the fatigue point is reached varies among individuals, and often in the same individual according as he is well or ill fed and slept. In general, however, it is now realized by most employers that even from their narrow outlook of profits, overworked employees are unprofitable.

"Sooner or later, this truth must be learned by housekeeping women."

This applies to the housekeeping woman herself as much as to the maid. Among other reasons why they don't get rest enough are some erroneous ideas. Change of occupation is thought to rest one, but it only tires one the more, though the interest of it may hide the fatigue. Our ordinary recreations—they should be called diversions, not recreations, for they do not recreate us—are fatiguing, though again the enjoyment at the time hides the fact; and we are apt to attribute the fatigue we feel after the



diversion wholly to the previous fatigue, when in reality part of it was due to the diversion itself. One never feels like settling down to hard work right after the usual so-called recreations.

It uses up energy—tires us—to read a book or newspaper, to study, to work at a problem, to keep books, to take part in social life where one has to respond to the person with whom one is conversing, to listen attentively to a lecture, to watch a play at the theatre, or a ball game, or the movies, to feel responsibility, to feel sorrow or enjoyment, etc. Everything we do requires energy.

We cannot avoid getting tired, but we can almost always avoid getting too tired. When tired, we must do less, that is, expend less energy per day. And we must eat more—for all our energy comes from the food we eat and the air we breathe. Now we can't breathe much more air, but we can eat more.

When we are tired we are usually less hungry. One erroneous idea is that food won't digest if you don't have appetite for it. It may take longer, but it will digest and yield up its energy—if you eat it. It certainly won't if you don't. So give it the chance.

Another mistaken idea is that if one is wakeful one should read or take exercise in order to "get tired enough to sleep." In most cases one is wakeful because one is already too tired to sleep. One should not, then, expect to benefit (though one may get sleepy) by adding to one's fatigue. It is better to lie quietly with the eyes closed in bed in a dark room and wait for sleep to come. One will then at least be resting, if not sleeping. Of course, we rest best if we sleep, because then we are using up the least amount of energy, but even if we don't sleep, if we spend as little energy as possible we may still get rested, though not so fast.

We are apt to forget that in late youth and early middle age our machinery begins to be less completely and quickly repaired; that, therefore, we fatigue easier and take longer to get rested, and that we need to conserve our energies, to spend them less lavishly. It is a good rule to so order one's life that one takes enough time for rest each night to fully make up for the wear and tear of the previous day. A few rare creatures like Napoleon and Edison can perhaps keep on with only three or four hours' sleep out of the twenty-four, but the vast majority of us would come to grief if we tried it. The average person needs at least seven or eight hours' rest daily. I myself need nine to keep up to my best efficiency.

Perhaps a half, possibly more, of the manic-depressive psychoses might be prevented if everyone, especially those who tire easily, and those who have already had one breakdown, would take pains in the first place to learn what things cause fatigue: if, in the second place, they would recognize early that such symptoms as I have mentioned probably mean fatigue; if, in the third place, they would realize that persistence in the fatiguing conditions and conduct

may mean a breakdown; if, in the fourth place, they would recognize that the cure of fatigue is rest and food, not more or different activity; and if, in the fifth place, the tired person would not think himself an exception to the general rule, but would apply to his own case the principles that he can see would apply to anyone else.

We need to remember, too, that fatigue is cumulative, that it piles up, or rather that our reservoir of energy will get slowly exhausted if we do not add daily as much as we daily remove or use up. It may take months or years to reduce the store to the point of a breakdown. It may take as long to re-accumulate enough to live on.

Besides this, if each person, and especially those who have already had one or more breakdowns would realize that his endurance is limited, would find its limits, and would keep within them, applying to himself the knowledge that he has, far fewer manic-depressive patients would be admitted to our hospitals, and there would be far less "nervous prostration."

IV. *Organic brain disease.* Almost another quarter of the patients admitted in this state have psychoses due to one form or another of well-known brain disease, with destruction of brain tissue. The patients lose their minds more and more completely, and either become totally demented or die of some physical illness before the dementia is complete.

Some two-thirds of this group, or about 16% of all admissions are due to the brain-cell changes of old age, to cerebral arteriosclerosis (that is, so-called hardening of the arteries of the brain), or to a combination of the two; and a small number to brain tumors, head injuries, etc.

We do not know why the pure senile changes occur at all, much less why they appear in one person at 65 or 70, and do not appear in another even at 90 or 100. It may be that a placid, temperate life is more conducive to mental longevity than the reverse, though there are plenty of examples of nonagenarians who have lived hard, strenuous, eventful lives without evident diminution of mental vigor—as, for example, Lord Strathcona and Mount Royal, who thought nothing of going to Europe on business at 93. So we don't know how to prevent pure senility.

Many causes are given for the occurrence of arteriosclerosis, some physical, some mental. Among the physical causes are said to be the habitual use of alcohol, either in moderate or intemperate amounts—this has been denied by some; in reality, we do not know. High living and over eating, especially of condiments and highly seasoned foods, are thought to be causes. And recently an old infection by a germ, the *Treponema pallidum*, has been thought to give rise to it in some cases—it is not yet proved. For mental causes, a too strenuous life and long continued anxieties and worries are thought to be effective. To prevent or postpone, therefore, a cerebral arteriosclerosis with its possible con-

sequences, one needs to live from the beginning a temperate, moderate life, in accordance with the best moral and hygienic rules that we know. If there are evidences of arteriosclerosis in other parts of the body, careful dieting and modification of the daily routine of life under the direction of the physician and as much freedom from worry and anxiety as it is possible to attain will contribute as much as anything we know to the postponement or prevention of its possible extension to the brain.

A third of the psychoses due to organic brain disease, or between 8% and 9% (8.3%) of all admissions (289 last year) are called general paralysis of the insane, general paresis, softening of the brain, paralytic dementia. Senile and arteriosclerotic psychoses are also sometimes called softening of the brain, though due to an entirely different cause.

It is now known that infection by the *Treponema pallidum*, or germ of the venereal disease syphilis, is the chief cause of general paralysis, though often indulgence in alcohol and complicated and strenuous living are contributing factors. Also some races seem to be more liable to paresis than others, and undoubtedly a smaller proportion of infected women have it than of men, for not every person who is infected with the *Treponema* has paresis.\* It is far more frequent in men than in women. In different countries and in different walks of life the amount probably differs, but no civilized country and no walk of life is exempt. More persons die of paresis in New York City than die of typhoid fever. But in spite of the contributing factors and modifiers, it is a true saying that there is no general paralysis without an antecedent syphilis.

Thus the problem of prevention of paresis becomes a part of the larger problem of the prevention of syphilis, as the latter is a part of the problems of prevention of all venereal diseases and of social and moral hygiene. It is closely linked with the problems of the prevention of feeble-mindedness, with the control and suppression of prostitution, and the regulation of public and private dance halls and places of amusement and recreation. And since general paralysis is one of the late results of an infectious disease, the problem of its prevention should be part of the work of the boards of health, local, state, and national.

General paralysis, then, is one of the late effects of a germ disease, syphilis, coming on usually from six to ten years, but sometimes as early as three, sometimes as late as forty years, after infection. To prevent it we need to know how and why the germ disease is acquired. It is fairly wide-spread in the community,—we do not know how wide-spread. Probably it is proportionately more prevalent in the cities than in the rural districts; and it varies very much

in different countries and sections of the same country. It is variously estimated at from 1% to 15% of the population. It is infectious, that is capable of being transmitted to other persons, but only in certain stages. The germs may lie dormant, as it were, in any person for years, even as many as forty.

How do people get infected?

A very few do so unknowingly and innocently. An infected husband or wife may give it to the other, who did not know of the infection. An infected workman in a factory may get germs on the towel, basin, soap, drinking cup, etc., that he uses, and the next workman, or some other, using the same article may get the germs into a broken place in the skin and himself become infected. A pipe or plug of tobacco, or a pencil which one puts in the mouth shared with another may be the medium. At a party a young man infected several young women on the cheeks and lips in a kissing game. Laws against the public drinking cups and against the use of public towels and bathing suits without sterilization after each use, are to guard against syphilis as well as tuberculosis. The so-called eugenic marriage laws are really directed against syphilis and other venereal diseases, much more than against tuberculosis and non-infectious diseases.

But the vast majority of syphilitics acquire their infection through prostitution and clandestine intercourse.

Men, usually young men, are the chief causes of its spread, for it is men who create the market for prostitutes and who patronize them. No man is compelled to patronize them. If men did not want to buy, there would be none to sell.

No woman can be long in the trade (for prostitution is a trade, organized as such chiefly by men) without acquiring from her customers one or more of the venereal diseases—then she transmits them to subsequent customers.

In a general way it is probably true that the number of men who patronize one woman and become infected through her is much greater than the number of women patronized and infected by one man. Hence the prostitute is looked on as the chief spreader of venereal disease. This is the ground for the segregation and periodical examination of these women in those places where such efforts are made to suppress these infections. But there is little use of segregation and examination of the women without equally vigilant examination of their customers. Hence the failure of all these efforts, for the male customer of prostitutes has never been systematically segregated and examined.

Until public opinion has gone so far as not only to back up the boards of health in requiring notification of the venereal infections as they do of others, such as diphtheria, etc., and to sanction the establishment of clinics, both in-patient and out-patient, for the care of such patients, but also to establish the same sexual standard for men as for women, to show equal disapproval of the one delinquent as of the other

\* Note: One and one-third per cent. of syphilitic Austrian prostitutes had general paralysis. Four and three-quarters per cent. of syphilitic Austrian army officers had general paralysis.

and to encourage the suppression of the male prostitute, the man who seeks and supports the woman—not until then will the venereal diseases be eliminated. *But this can be done*, as any other infectious disease can be wiped out, whenever the public sees that it is to its interest to do so.

Until that time comes, we can still do something to diminish the incidence of syphilis, and so save some from general paralysis. We need to know why people expose themselves to infection, especially young people.

Most of them are quite unaware of the risks they run, or regard the infections as trivial—"nothing more than a cold." And, fortunately or unfortunately, it so turns out with some; it is all too late when the later consequences are seen in the others. Early education and information adapted to the age—not sentimental, goody-goody talks, but straightforward truth—when ever the boy or girl shows inquisitiveness about sex matters, is a safeguard. It may be at 6 or 7, or 10 or 11, or 15 or 16. It is at least as early as the latter age, and usually as early as 8 or 10, that curiosity is aroused.

The young man and the young woman seek sexual gratification together for different reasons. Both perhaps from strong sex feelings, from self-indulgence, and from ignorance of sex hygiene. The young man seeks it from curiosity, love of excitement and of adventure, desire for a new sensation, or because his companions do it and he is ashamed not to, or because he thinks it is manly, or because he is told that before marriage he must "prove his manhood," or sometimes, I regret to say, because of the advice of some physician or other elder who has not outgrown certain traditions of the ignorant and whose moral insight is not very acute.

Young women have, as a rule, denser ignorance of sex matters than young men. In the beginning most of them are the sought rather than the seekers, however it may be later. Of those who become prostitutes, probably three-fourths are somewhat feeble-minded—that is, they are pleasure-loving, have no foresight, little sense of responsibility, are vain and foolish, easily influenced, and are inefficient as workers. Advantage is taken of these characteristics and they are easily led into the life. Investigations have shown that only a small percentage go into it from stress of poverty.

What, then, can you individually do to lessen or prevent general paralysis? We must forestall all the bad reasons for indulgence with better ones for non-indulgence in clandestine intercourse. Those who have had, or been exposed to, syphilis can be advised to consult some thoroughly competent physician, not the advertising quack, with regard to treatment. Some of the newer methods offer a chance of preventing the later onset of general paresis. You can help make the public opinion which backs up those individuals and organizations that are combating its causes. You can aid those organizations

financially. And in your own homes and communities, as you have the opportunity, you can teach boys and girls the fundamental principles of sex hygiene, bringing out the higher, beautiful side of it; you can teach them self-control, self-respect, and respect for others; you can teach them that only in wedlock, when the child—the possible product of the union—can be reared and cared for in a home by two parents, that only then is there justification for sexual intercourse. And you can teach the boys especially, not only that continence is not harmful and that sex gratification is not necessary, but that it is unmanly, unchivalrous, unsportsmanlike, dishonorable, selfish, cowardly, despicable to take advantage of a girl's weak-mindedness, vanity, or strong sex feelings; that the only honorable, manly thing to do is to protect her against herself, if need be; that he should take pride in protecting her, not in exploiting or taking advantage of her.

I have gone into this at length, because general paralysis is an absolutely preventable disease if we will only take the necessary steps. No one need have it if he will keep out of infection's way, and nothing compels him to go into it except his own self-indulgence. And the means necessary to make general paralysis impossible, that is, elimination of syphilis, will help diminish feeble-mindedness, and some of the other psychoses as well, and will help in many other necessary and urgent reforms.

V. *Toxic psychoses.* The next group of mental diseases is due to intoxication either by substances introduced into the body from without or arising from within it. We call them the toxic psychoses, and they make up about 14% or 15% of all admissions. Since the Harrison law went into effect there have been a number of admissions due to the withdrawal of morphine and cocaine from those who had become habituated to their use, and some of these have been insane. There are delirious conditions in acute germ diseases, like pneumonia and typhoid fever, and there are deliria and other states of mental aberration in other physical illnesses, such as advanced heart and kidney diseases, and so-called auto-toxic diseases.

The deliria and wandering of the mind in acute illnesses are partly preventable, for they are partly due to too free use of sedatives, hypnotics and narcotics, and partly to the fact that too little attention is paid to the amount of food and water that the patient takes. The parched lips and dry tongue and the loss of weight of the patient with acute illness are very largely due to insufficient supply of water and food. It is a mistake to think the patient does not need as much as when well—he often needs more, because, if he has fever, his tissues are being used up faster, and he perspires more. If not given food and water enough, his mind begins to wander a little, at night especially, and he sleeps less well. Sleeping medicines may stupefy him into sleep at first, but they soon lose their ef-

fect and begin to cause a delirium of intoxication on their own account; and meanwhile they interfere to some extent with digestion. Thus the delirium is kept up and the patient becomes unmanageable, is thought to be insane, and is committed. This is the history of a number of cases, most of whose deliria could have been prevented.

By far the most important part of the toxic group is alcoholic insanity—a wholly preventable psychosis, for no one would have it if he did not drink. Fully twelve and one-half per cent., one-eighth of all the admissions to the hospitals for the insane, are due directly to this cause; and in an indefinite number of other psychoses the use of alcohol is an important contributing factor. Like general paralysis, it is a psychosis chiefly of men.

While the man who is known to drink excessively is more apt to become insane, the so-called moderate drinker, who never becomes intoxicated or goes on sprees, is by no means exempt. It has been shown experimentally that the man who continuously drinks a couple of glasses of beer three times a day, or its alcoholic equivalent in wine or liquor, keeps his efficiency as to speed, accuracy and amount of work, and as to general judgment, some ten to fifteen per cent. below his normal; but he does not realize it—on the contrary, he thinks he is doing his work very well. The more he takes daily, the lower is the level of his efficiency. Even the amount of alcohol in a single glass of beer or wine has for the occasional drinker its impairing effects, which do not wear off completely for 24 to 36 hours. Alcohol, even in moderate doses, diminishes sensibility, physical, mental and moral. It lessens self-control, both moral and muscular. It lessens resistance to fatigue and physical illness, especially the infectious diseases, and to the shock of surgery and accidents. It has certain medicinal uses, in spite of these effects.

How shall we prevent alcoholic insanity?

The internal use of alcohol is so wide spread that we cannot easily pick out beforehand those who are liable to become insane from its use. But since its effects are almost wholly deleterious, and often dangerous to the lives and limbs of others as well as the user, the limitation or suppression of its general use, even in so-called moderate amounts, will be beneficial to society, to labor, and to business. By as much as drinking is generally abolished, by so much will alcoholic insanity be lessened.

There have been many movements, some more judicious than others, to bring about this reform. Those which seek to educate the public as to the exact facts, without prejudice, exaggeration or sentiment, are the best. For an intelligent and educated public sentiment will back up restrictive measures which aim at wholesale protection against the evils of alcoholism, by rigidly restricting the sale of that which causes them.

But we need to work individually, too, and to do that we need to know why the individual drinks.

A few drink at irregular intervals because from time to time an almost or quite irresistible craving for it comes over them; in one patient of mine a sip of wine on a social occasion would be sufficient to start the craving which could not be controlled until the patient was too stuporous with drink to take more. The craving lasts for a few days or a few weeks, and in the intervals the patient takes no alcohol. These are the dipsomaniacs, so-called.

Some drink beer, ale, stout, wines, champagne, whiskey, brandy, gin or rum for what they regard as medicinal reasons—to give an appetite for meals, to promote digestion (as they think), to produce sleep, to ward off the effects of snake bite or of exposure to wet and cold, to relieve pain; or to “brace up” if “feeling like a boiled owl” the morning after heavy drinking, or if fatigued or in anticipation of carrying through some social or business or other straining occasion; or to relieve the feelings of nervousness and tension when fatigued; or to relieve feelings of downheartedness, blueness, depression, worry, or “drown sorrow” or disappointment, or the general “down and out” feeling; or to give courage and strength for various undertakings, from social occasions to fighting.

People often drink merely from custom—in many countries and regions it has been an immemorial habit to drink at meals or other times. Some—especially young people—drink because others do. They don't wish to appear different from others, nor to be thought sissy or cowardly or unmanly or tied to their mother's apron-strings. Some drink socially, as at dinners, to loosen tongues and “make things go.” Many drink for the sake of sociability, friendliness, hospitality. And a limited number drink just for self-indulgence, some because they like the taste, but more because they like the effects—the warming up, the relaxation, the mild exhilaration, the feeling of ease or of capability, or the relief from discomforts, pains or blues. Many have told me they did not care for the taste, but they did not wish to endure discomforts when there was something that would relieve them.

These inadequate or erroneous reasons, based on ignorance or self-indulgence, must be supplanted by knowledge and a desire for self-control.

If everyone knew what the effects of alcohol really are, its internal use would be almost limited to the prescription of physicians.

The self-indulgent need to be taught better self-control—a process that should begin in early infancy. Some of them, and those who drink for superficial social or other reasons would not do so if they fully realized what the effects of drinking are. These need educating.

You can individually help prevent not only alcoholic insanity, but many of the more



extensive evils resulting from the widespread use of alcohol, by discouraging its use in your own homes and among the persons of your acquaintance; by increasing the number of those who with dignity, courtesy and courage, not apologetically, decline the social drink; by teaching your young people early to avoid alcohol as you do to avoid indigestible food or to play with matches, and by teaching them not to "treat" or be treated. If you support with your votes, influence and other backing those who are conducting a sensible educational propaganda, those who are promoting industrial insurance and employers' liability laws, and those employers who refuse to engage workmen who drink, you will help. You may need to remember that money paid by dealers into the city or town treasury for licenses to sell liquor by no means pays for the necessary additional police protection, court expenses, accidents and injury to persons and property, support of jails, reformatories and houses of correction, and of the alcoholics in them, support the alcoholic insane, loss of wages, support of those dependent on the drinker, and the cost of educating and taking care of the defectives that he may procreate. It is well to remember, too, that the standards of living are lowered and the value of property deteriorates in the community or part of it where alcohol is freely used—you do not like to go through the saloon districts. In addition you can help by trying to enlist the best intelligence of the community in the effort to devise and operate an effective, attractive, and harmless substitute for "the poor man's club."

VI. *Miscellaneous psychoses.* The remaining fifteen to twenty per cent. of admissions are made up of small groups of cases, such as paranoia, epileptic insanity, etc., and many others of doubtful diagnosis; but at least a small proportion of them would unquestionably be prevented by the measures taken to prevent the psychoses which have already been considered. For the rest, we do not yet know enough about their nature or their causes to direct any specific efforts against their occurrence.

#### CONCLUSION.

In conclusion we may say that an indeterminate but very large amount of feeble-mindedness can be prevented; that of the insanities proper, the alcoholic and drug psychoses and general paralysis—a fifth of all the cases occurring each year—can be absolutely prevented; that of the fatigue psychoses a large proportion, possibly a half or three-quarters, might be avoided; that possibly a small proportion of the dementia praecox and arteriosclerotic psychoses might be obviated; and that a small proportion of the remaining forms also might be prevented. Thus if the means here suggested should be universally known and applied throughout the state, it would happen in the course of a generation that there would occur yearly, at a very con-

servative estimate, a quarter, and at a reasonable or moderate estimate, a third less insanity in the state, and I do not dare to say how much less feeble-mindedness,—perhaps three-fourths. The indirect benefits to the community in lessened costs to the state,—and hence in taxes—in lessened crime and dependency, in better health, better efficiency, better standards of living and better morality, are incalculable.

#### PELLAGRA; A REVIEW OF THE SUBJECT, WITH REPORT OF A CASE.\*

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I WAS requested by your program committee to make an address to you tonight to celebrate the completion of my term of office as president of this society. At the time of that request, the subject and the case that follows were greatly interesting me and fresh in my memory, so in lieu of an address, I trust in presenting this paper to be able to lay before you an interesting subject and an unusual case, and that the subject matter will help to familiarize us with a clinical picture that has been absent from the minds of most of us.

Pellagra is a disease characterized by periodic digestive, cutaneous and cerebro-spinal symptoms.

#### HISTORICAL REVIEW.

It is a very old disease, having been recognized in Spain as early as 1735 and first described by Casal in 1762. Casal called it "Mal de la Rosa." In 1750 it existed in Italy where it was described in 1771 by Frapolli who named it pellagra (a rough skin). By the eighteenth century, in Italy, France and Roumania, it was a commonly recognized disease. Now, it is found not only in these countries, but also in Portugal, Spain, Egypt, South Africa, Bessarabia, Russia and in the United States. Doubtless, it is present but unrecognized in all countries where conditions of living compare favorably with those of the above named countries. Its highest prevalence in the United States is reached in the mill villages of South Carolina where cases have averaged 150 to every 100,000 population.

Not until recently did this disease become recognized in the United States, although it must have existed here for a great many years. In the states where the disease is now known to prevail extensively, older physicians are able to recall many cases which failed of diagnosis in the past, but which, in the light of their present knowledge and experience, they would not hesitate to call pellagra. Babcock states that he

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ought to have made the diagnosis of pellagra in South Carolina nearly twenty-one years ago. Evidence is not lacking that the disease existed in this country in the early sixties, that it was at least in part responsible for the mortality in Andersonville prison during the Civil War, and that "cases of pellagra, native and imported, have probably occurred in general practice and especially in asylums and hospitals in this country for the last half century, although the diagnosis may not always have been correctly made." (Babcock).

At first the cases were confined to the South, but gradually reports came from all parts of the country. It has now been recognized in over thirty-two states.

As early as 1862, Tyler reported the first case in Massachusetts. Then comes a break until 1910, when Fitzgerald, Dean, Lee and MacDonald reported cases. With the cases this year coming from such widely different parts of the state as Danvers,<sup>1</sup> Lowell,<sup>2</sup> Northampton,<sup>3</sup> Holden,<sup>1</sup> Worcester,<sup>1</sup> Newton,<sup>1</sup> Winchendon<sup>1</sup> and Taunton,<sup>1</sup> we are forced to realize the general distribution of pellagra in this commonwealth. Since the first of January, 1915, there have been reported more than sixteen cases of pellagra in the various towns of this state.

From the Rhode Island State Hospital for the Insane, Dr. Cohoon has reported to the State Board of Health, fifty-seven cases up to September, 1914, and there have been a few cases since, together with a few (very) outside of the institution. At present there are two cases in the Rhode Island Hospital.

Statistics showing the number of deaths in Massachusetts and the total number in the United States from pellagra are as follows:

Year.	Deaths in Massachusetts.	Deaths in United States Reg. Area.
1910 .....	1 .....	368
1911 .....	1 .....	650
1912 .....	5 .....	674
1913 .....	11 .....	1015
1914 .....	18 .....	•
Total .....	36 .....	2716

\* Figures not available.

#### ETIOLOGY.

The etiology of pellagra has been one of the most fascinating subjects for research in recent years. It yet remains an unsolved problem.

As early as 1810, Marzari declared the cause of pellagra to be the eating of diseased corn and from that time, a large number of able men have insisted that maize poisoning was the etiological factor. Those belonging to this class have been named Zeists. They were in turn divided into two factions: one set considered that the symptoms resulting from this corn poisoning were due to certain nutritive deficiencies, the others believing they were due to toxic substances developed by a biological agent.

One of the great students, Tizzoni, admitted finding pellagra cases among people who did

not use corn as food. Other physicians have insisted that pellagra was an infection.

Sambon in 1905 claimed to have proven the buffalo gnat (*simulium reptans*) to be the intermediate factor in transmitting the disease, but even the latter was obliged to admit that cases of pellagra were found where the buffalo gnat did not exist.

Nichols isolated spore-bearing bacterium from the stools of pellagra patients which survived steaming for two hours. Because of this he claimed that the same organisms could survive cooking and be transmitted in food and was a probable cause of pellagra.

Wood isolated a strepto-bacillus which stood ninety degrees centigrade for one hour and drew a like conclusion.

The stable fly and sand flea have been claimed to be the cause by other investigators.

The Thompson-McFadden Pellagra Commission stated in January, 1914, that "pellagra is, in all probability, a specific infectious disease communicable from person to person by means at present unknown." Cencelli in 1915 stated that pellagra was due to chronic poisoning by silica in colloidal solution in water, that is, mineral colloids caused a mineral acidosis which would give rise to symptoms such as we now recognize as characteristic of pellagra. Treatment based on the theory of neutralization of these poisons has proven very satisfactory. It is to be noted that no attendant in an institution for pellagra patients ever contracted the disease. It is most frequent in middle life and amongst the female sex. The negro race is very susceptible. It is prevalent among the laboring class and seems to thrive particularly in the spring and autumn seasons.

It has seemed entirely logical to some thoughtful students that neither food poisoning nor infection were the cause of pellagra, but that it was an improper dietetic balance with accumulated toxins which acted as the true cause.

After several years of careful investigation, the United States Public Health Service has recently declared that pellagra is probably of dietetic origin. Of equal importance, they assert that it is not an infectious or contagious disease.

#### PATHOLOGY.

Acute pellagra shows at post-mortem examinations, evidences of acute and chronic poisoning, such as central neuritis. There is not found any proof of infection of the nervous system with micro-organisms. The examination of chronic cases give no definite pathology that can be attributed solely to pellagra, although fatty and fibroid degeneration, chronic alterations in nerve cells, increase of glia fibres, permanent destruction of nerve fibres and a marked increase of amyloid bodies have been noted.

In acute cases, there is perivascular infiltration, indicating general intoxication, indirect chromatolysis of nerve cells, astrocytosis and

presence of ameboid glia cells. Osler states that acute cases show intestinal atrophy, fatty degeneration of internal organs, alterations in the cord, degeneration of the lateral columns in the dorsal region and posterior columns in the cervical and dorsal regions, also atrophy of the cerebrum.

#### SYMPTOMS.

Onset is usually in the spring, with weakness, headaches and depression. The symptoms differ, first, according to the stage of the disease, and second, according to the type. The stages might be classified somewhat as pulmonary tuberculosis, *i.e.*, incipient, moderately advanced and advanced.

The usual type or clinical form may be seen, first, as the acute febrile or typhoid, second, as the chronic recurrent, and third, cases without the skin manifestation—the pellagra *sine* pellagra. Since pellagra is a poisoning, the symptoms depend upon the degree of intoxication.

The chronic, recurrent form may be best described under three stages. The first stage, the clinical manifestations, of trifling character, may not even lead to a call on the physician, yet the patient knows he is not well. There may be a tired feeling, loss of appetite and perhaps, "the blues." He may be bilious and have headaches. The digestion may be characterized by a feeling of fullness after eating with resulting eructations and heartburn. Transient attacks of diarrhea may occur. The tip of the tongue sometimes is red. These symptoms often appear so slowly that they are not noticed for weeks after the onset, and with cold weather the patient again improves.

Symptoms show a tendency to recurrence, each attack taking its toll of vitality and leaving irreparable damage behind.

**Second Stage.** After repeated attacks of the first stage there may follow marked accentuation of all of the foregoing symptoms. The patient becomes weak in the lower limbs and does not care to try to walk or exert himself. There is marked mental depression, soreness of the mouth and tongue that comes and goes. Gastro-intestinal symptoms become marked by alternating diarrhea and constipation. There is loss of weight and poor appetite. Unusual sensations may be present in the legs and feet such as formication and burning. Eechymosis and petechiae appear on the back of the hands and sides of the neck, which on fading, leave dark, discolored areas. The skin becomes dry, wrinkled and poorly nourished.

**Third Stage.** This is the classical pellagra characterized by stomatitis, a smooth red tongue, languor, salivation, bulimia, nausea, periodic vomiting and intractable diarrhea with slimy, foul-smelling, green stools. The temperature is subnormal. A symmetrical erythema may appear on the hands, usually on the parts exposed, as arms, face and neck, which resembles sunburn. There may be vesicles or bullae followed

by ulcers. The spinal symptoms include paresis, paraplegic gait. The cerebral symptoms may show vertigo, epileptiform convulsions, confusional insanity and dementia. The final end is one of wasting and cachexia and terminal diarrhea.

The acute febrile or typhoid form is characterized by pain in the epigastrium, headache, nausea, vomiting, diarrhea, bloody stools, fever delirium and a typhoid course, terminating fatally in from ten days to six weeks.

Pellagra *sine* pellagra may have any combination of the symptoms named minus those of the skin.

#### PROGNOSIS.

The earlier is pellagra recognized, the better the prognosis. The chronic type without mental involvement gives a good prognosis; the insane or mental cases, a bad prognosis. The acute or typhoid form is usually fatal.

#### DIAGNOSIS.

If you are familiar with the clinical picture, typical cases are easily diagnosed, yet the mild, incipient or atypical cases are liable to be diagnosed as anything and everything but pellagra, such as pulmonary tuberculosis, malaria, syphilis, acute delirium, hookworm disease, dermatitis exfoliativa, eczema, etc.

The differential diagnosis is concerned with purpura, sprue, scurvy and the nervous manifestations with general paresis.

There is no characteristic blood picture. Stomach analysis may show diminution in hydrochloric acid and pepsin, or their complete absence.

It is irregular in its manifestations and a long drawn out disease, perhaps requiring years to develop characteristic symptoms that we recognize.

The triad of dermatitis, nervousness and diarrhea make the diagnosis easy. It must be borne in mind, however, that cases may be found with any one of these factors absent. These symptoms when present may all appear at different times without apparent relation. Diarrhea in a pellagrous area is regarded suspiciously. Gastro-intestinal symptoms may persist through the cooler months and be the forerunner of diarrhea.

When all ordinary causes have been eliminated, dyspepsia characterized by a loss of appetite, nausea, sore mouth, stomatitis, gastric pain, pyrosis, distention and belching, lasting from a few weeks to months, especially in spring or summer, should make one suspicious of pellagra. The tongue is claimed to be quite characteristic; shedding of epithelium, appearing smooth and red at the tip, and with denuded areas extending back towards the base, again, it may be cracked and fissured.

It is most common in men from twenty-one to forty, in women, from forty-one to sixty,

leaving children practically exempt. Nervous and mental disturbances occur in nearly fifty per cent. of all cases. Mental manifestations are more apt to be found in the weak-minded or defective. Over fifty per cent. of the deaths in institutions for insane in South Carolina were reported as due to pellagra. Therefore, pellagra must be eliminated as a causative factor in these cases.

#### TREATMENT.

The treatment for pellagra is as devious and as unsatisfactory as the search for its cause has been. We find almost everything that has been used in pathological conditions tried as a possible cure.

The Bulgarian lactic acid bacillus has been tried. Shoemaker states that cases have been relieved by surgical interference, *i.e.*, gall bladder drainage, appendectomy, appendicostomy causing drainage and increased leucocytosis. He also states that intravenous injections of metals, metallic colloids, electrically prepared, and organic colloids of metals, such as antimony, copper, selenium, silver, arsenic and iron, caused chills and a marked leucocytosis in forty minutes. A continued treatment gives an increase of lymphocytes and other white cells.

Autoserum obtained from artificial blisters has been used. Picric acid external, and internal, ten to thirty drops in a one per cent. solution has been recommended. Drugs such as bismuth, salol, quinine and emetine have also been used.

Trisodium citrate, 1 cc. of ten per cent. solution hypodermically daily; thyroid extract and sodium chloride are used.

Atoxyl, seven and one-half grains three times daily, arsenic trioxide and arsenate of sodium, sodium cacodylate, Fowler's solution and Donovan's solutions are suggested.

Astringents for sore mouths, such as silver preparations, protargol and argyrol are used.

For diarrhea, tannic acid has been effectively tried.

When there is sore mouth, diarrhea and gastro-intestinal disturbances, diet is made very difficult.

Rest and good nursing are most important.

Hydrotherapy has been tried.

Prophylaxis is impossible without a cause being known.

The case which follows came under my own observation and in so far as I know, the first case which has been recognized as pellagra in Fall River.

Mrs. H. Widow. Age, 63. Born in England and lived in the United States 41 years. Occupation, housewife and practical nurse for the last 25 years.

**Family History.** Father died of heart failure, probably due to asthma. Mother died of "droopy." Two sisters living; no brothers or sisters dead. Husband died 30 years ago of heart trouble after illness of 11 months. Has had 7 children,—4 girls

and 3 boys. One boy died at 27 years of age from pneumonia; one, at 21 from pulmonary tuberculosis. One of the 4 girls living had a tubercular kidney removed 5 years ago.

**Past History.** Always well. Average weight, 180 to 190 pounds. Does not remember about diseases of childhood. No miscarriages. No skin eruptions. Menopause at 50 years with little disturbance. No leucorrhea or bloody discharge since menopause.

**Habits Regular.** No alcohol or drugs used. Hard worker. Appetite good and sleeps well. Home conditions good. Even temperament although somewhat nervous.

**Present Illness.** First period, May, 1913. Patient was first seen by me in May, 1913. She complained of eructations and stomach trouble, ringing in the ears and a feeling of weakness. She complained mostly of her right ear, which she said kept her awake nights. She was sent to an ear specialist, with but little improvement in the ear condition. Her appetite was fair. She was able to do her work and did not consider herself ill. The physical examination at this time corresponded to the description that follows: Temperature, pulse and urine were normal. No definite diagnosis was made at this time.

Second period, from March 30, 1914 to May 20, 1914. The patient again consulted me, once in March and twice in May at my office, for the same conditions as described above. She showed some loss of weight, increased nervous tension and mental anxiety about her condition; some increase in digestive disturbances, which was shown by a feeling of distress on eating, loss of appetite and poor sleeping. The ringing in the ears was present and gave her great annoyance. She was worried about her condition without being able to state just why. There was no pain. The most pronounced clinical feature presented was that of mental stress and loss of proper mental balance as displayed by an anxious look and a sluggish mental activity.

Physical examination as follows: Blood pressure was systolic 155. Urine, pulse and temperature normal. The patient at this time gave one the impression of suffering from blood depravity and a stomach disturbance probably due to an obscure gall-bladder. There was a low nervous and physical tone. There was no one symptom sufficiently marked to warrant a diagnosis. An interval of over three months occurred, during which time I did not see the patient.

Third period, October 3, 1914, to April 1, 1915. Patient again consulted me in the fall, complaining of dizziness, a lump in the stomach after eating, frequent eructations, vertigo, marked anemia and a loss of weight from 172½ pounds to 159¾ pounds. Increased weakness was evident, and the anxiety mentioned before became more pronounced. There were occasional spells of vomiting. She was sleeping poorly. There was a marked indifference as to exercise and considerable weakness in the limbs. In November and December, she complained of sore mouth and tongue, rendering eating and drinking somewhat painful. The bowels were too free at times. Urination normal. In March, 1915, there appeared on the back of both wrists a dry, scaly, eczematous eruption extending from the back of the hands up the forearms for about two or three inches. This condition persisted for about two months and then slowly cleared up.

Stomach analysis at this time gave no evidence



of blood or malignancy. A hypomotility was indicated by six ounces residual amount in one hour. Total acidity, normal. Free hydrochloric acid was absent. Temperature, 97 to 98; pulse, 74 to 84. Blood pressure: systolic, 140; diastolic, 80. The blood analysis was normal excepting for the absolute red blood cells which were about 3,900,000. A differential count failed to show any nucleated cells or indications of pernicious anemia. Hemoglobin was 80%. Urine analysis, normal. Frequent examination of the vomitus gave no indications of blood or malignancy.

During the early part of this period, the patient was able to come to my office, but during the last two-thirds of the time, she felt unable to walk any distance.

At the end of this period, a diagnosis should have been made. The clinical picture, however, was so strange that I confessed to the family my ignorance as to the cause of the illness. I suspected malignancy, but that was about as far as I dared to go.

Fourth period, April to October, 1915. This period is marked in its first half by an improvement. In the early part of the spring and summer, the patient was able to eat heartily and almost anything. For a few weeks, there was an interval of apparent improvement. She spent about a week at the seashore, but the summer, however, saw the recurrence of more severe symptoms. During the fall months there was an increase in mental abnormalities that was quite marked. There was a sluggish mental activity, fear of impending catastrophe, dislike of being left alone, altered periods of torpidness and morbidity. In her better moments she chided herself for worrying so much, and yet she seemed to be in the grasp of some mental weakness that rendered her helpless to prevent these attitudes. A few weeks before death, the mind was almost constantly confused and for days she would lie in a stupor. At this time for a few days, there was loss of control of both sphincters. When forcibly aroused, she would appear to believe she was dying. Following this period, the sphincters regained their control. She would lie muttering for hours and then perhaps rouse up and answer questions and talk quite connectedly for a short time. There were pains in her thighs of which she complained, but evidently transitory and not very severe. The skin was dry and rough. Ecchymosis appeared and persisted about the wrists and forearms. There was a continued loss of weight, going down from 148 to 115 pounds (estimated) in October. The limbs became weaker. The gums were too shrunken to hold the plates of false teeth. There were increased frequent spells of diarrhea. The week before she died there was uncontrollable diarrhea, and marked illusions which were manifest by her belief that she was burning England and destroying England and that she was committing some terrible crime. Her face was pinched and drawn, with an exceedingly anxious expression. The eyes were sunken. The tongue was red at the tip with a smooth channeled area extending two-thirds way back. It was cracked and fissured. There was a period of continuous salivation with wiping of the tongue and lips until they were sore. A few days before death, a blister the size of a quarter appeared on the left ankle under the external malleolus. The abdomen became greatly distended. During the last week of life, if touched, she would cry out with pain.

Although this period is continuous with the last, yet its symptomatology differed. There was a cessation of stomach and skin symptoms and an evident improvement in the blood and hemoglobin.

*Physical Examination.* In October, 1914. Well developed and nourished; height, 5 feet, 6 inches; weight, 171 pounds; complexion, pale; skin, slightly dry; false teeth; wears glasses to read with. Neck and shoulders normal excepting for a tumor the size of the hand, oval in shape, flat on the outer surface, soft in consistency and containing a few firm areas within, about the size of a marble. The tumor has been as now seen for the last twenty years without changing in size. It lies on the left shoulder against the base of the neck, overlapping at its middle point, the middle third of the clavicle, its lower half lying on the chest. It is movable, not tender, and diagnosed as a lipoma. The chest is full and well developed, normal in shape. Mammary glands, large and pendulous, free from suspicious signs. Heart apex in the fifth interspace nipple line, and right heart, two cm. to the right of the mid-sternal line. Sounds are normal excepting for a soft, low, systolic murmur heard at the apex. Lungs are normal. Abdomen well covered with subcutaneous fat, somewhat flabby and pendulous. Liver and spleen normal. No masses or abnormalities detected on palpation. No enlarged glands found anywhere. Pelvic examination, normal. Rectal examination, normal. No abnormalities of the feet, limbs or hands excepting for slightly enlarged phalangeal finger joints. Reflexes normal excepting for slight sluggishness in pupil reflexes. Urine examination, negative. Blood pressure: systolic, 140; diastolic, 80. Temperature, 95 to 98. Pulse, 78 to 120. Ophthalmoscopic examination, negative. Patient refused x-ray bismuth examination. Numerous physical examinations were made by myself and one each by two able consultants. No new points in physical examination were noticed except the steady loss of weight, changing conditions in the skin as noted, and a few weeks before death, a slightly positive Babinski.

This case presents aspects of unusual interest when considered in relation to the various theories as to etiology.

Let us have in mind that the belief in the maize poisoning is now so well fixed in certain European governments, that preventative measures and health laws are framed in accordance with that conclusion. Yet in the case reported, it was impossible to learn of any occasion where maize was used.

Recall again the statement recently made by the United States Public Health Service that pellagra is caused by a diet faulty in the relative amounts of vegetable and animal proteins such as might be found in a poorly mixed or a badly balanced diet. Yet my patient had no peculiarities of diet, but ate meat and had a variety of food such as was enjoyed by four other healthy members of the family.

Reviewing the subject, one often meets the statement that it is a disease of the poor and most often found in filthy surroundings. Yet it is admitted that cases may be found among the well-to-do. The home of the case reported was comfortable, clean and above the average in all sanitary arrangements.

The Thompson-McFadden Commission, as quoted before, made the following statement in 1914. "Pellagra is, in all probability, a specific infectious disease, communicable from person to person by means at present unknown." The relation of this theory to the case under discussion, because of the following facts, has a special interest. For a number of years, there had been sent to the home of the patient, certain articles of fancy work and some fruit from Porto Rico. The fancy work had been done by Porto Rican women. One cannot but stop to speculate as to a possible connection between the theory last stated and these facts.

Only a few weeks before death was I certain I had to deal with a case of pellagra. My tardiness in recognizing the condition was because of my lack of the typical clinical picture. Here, as in many other cities, the recognition of one case of pellagra, assuring us of its presence, may stimulate study and lead to the discovery of many unrecognized cases. The fact that it had been reported in two cities as near as Taunton and Providence should have assured us of its presence here. Then it is said to be especially prevalent in southern mill towns, the character of whose industries and inhabitants is much like our own. Here, many of our foreign inhabitants come from pellagrous countries, all of which lends to the probability of many cases now existing among us unrecognized.

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## ACID AUTOINTOXICATION IN INFANCY AND CHILDHOOD.\*

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BETA-OXYBUTYRIC acid, diacetic acid and acetone may be grouped together under the col-

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lective name of the "acetone bodies." Their relation in the order of formation is probably beta-oxybutyric acid, diacetic acid and acetone. The acetone bodies are due to one common cause, that is, a peculiar inhibition of the oxidative processes. The failure of oxidation is not due to lack of oxygen, but to some local interference with oxidation. The excretion of beta-oxybutyric acid represents a much more advanced degree of oxidative perversion than the excretion of acetone or diacetic acid.

*Origin of the Acetone Bodies.* Beta-oxybutyric acid can be formed only from fats, by degradation, or by synthesis from bodies containing two or three carbon atoms. In the latter case it would be immaterial whether these bodies were a product of the disassimilation of albumen or of fat. It is a one-sided view to consider only the fats or only the proteins in this connection. The phenomenon of acetonuria with its many modifications is easily comprehensible if it is understood that acetone is a synthetic product derived from certain bodies which contain few carbon atoms and which may be derived from different sources. Normally the fragments of the proteins and fat molecules which contain but a few carbon atoms undergo further oxidation. This occurs, however, only in the presence of a sufficient quantity of carbohydrates. The explanation probably lies in the fact that the carbohydrates contain so much oxygen. A portion of this oxygen is presumably liberated when the carbohydrates are broken down and is used for the oxidation processes.

Acetone is normally present in the urine in small amounts. Diacetic acid and beta-oxybutyric acid are never present under normal conditions. The excretion of acetone is increased both in health and disease if the diet consists exclusively of meat and fat. This increase is not due simply to starvation, because the acetonuria persists even if the caloric value of the food is brought up to normal by the addition of fat. The addition of a small amount of carbohydrates under these conditions does not prevent the excretion of acetone in the urine. If, however, sufficient carbohydrates are added, the acetonuria ceases. The addition of fat to an ordinary diet does not cause acetonuria. The absence of carbohydrates is also necessary.

To sum up, the acetone bodies are formed from fat in the absence of carbohydrates or when the metabolism of the carbohydrates is abnormal. They may also, under certain conditions, be formed from protein, the amount formed from protein being, however, relatively unimportant in comparison with that formed from fat.

The acetone bodies are not formed in the digestive tract. This is proved by the fact that the administration of the acetone bodies by the mouth causes no symptoms.

*Action of the Acetone Bodies.* (The deleterious effect of the acetone bodies is not due to any specific toxic properties which they possess,

but to their acid character in general and to the power which they possess as acids in withdrawing alkali from the organism. (It must be clearly understood that the acetone bodies are in themselves not essentially toxic and that they can prove harmful to the body only by removing the bases.) (Under normal conditions there is a preponderance of bases over acids in the body. When acids are formed in, or introduced into, the body they have a deleterious influence upon it. The body has, however, a very efficient mechanism to guard against this deleterious action. The reaction of the body is regulated through the blood. Acids displace bicarbonate of soda from the blood and set carbon dioxide free. The excess of carbon dioxide is removed through the lungs. A neutral salt is left, which is removed by the kidneys. They excrete acid phosphate and save the base. The proteins, being amphoteric, are also able to neutralize a portion of the acid. Ammonia is also formed from the fixed proteins of the body and aids in the neutralization of acids.)

*Etiology of Acid Intoxication.* (In acid intoxication an accumulation of acids occurs as the result of the failure of elimination to keep pace with the production of acids. It may be due to an overwhelmingly rapid production of acids when the eliminating mechanism is normal, as in diabetes, or to the failure of the eliminating mechanism to dispose of a normal amount of acid, as in some cases of nephritis.) In the latter instance the urine will contain little or no excess of the acetone bodies. (When large amounts of an alkali are given when there is an acid intoxication from the overproduction of the acetone bodies, the elimination of these bodies in the urine may be increased from the setting free of the acetone bodies and the urine contain more of the acetone bodies, although the amount of the acetone bodies in the system is diminished.) It is evident, therefore, that the amount of the acetone bodies in the urine does not necessarily show whether or not these bodies are accumulating in the organism.

Lactic acid, which can be formed from both carbohydrates and protein, may probably also be a cause of acid auto-intoxication. (Evidence in favor of this assumption is that lactic acid is a constant constituent of the blood after exercise, and in dogs appears in the blood after the cramps produced by strychnine or phosphorous poisoning.)

*Acetone Bodies in the Urine.* It has already been stated that under normal conditions the urine contains a minimum amount of acetone. This amount is so small, however, that it is not recognizable by the ordinary reagents. The acetone bodies appear in the urine within a short time after the cessation of the taking of food. The residual carbohydrates in the adult are used up after the fifth or sixth day, after which time the carbohydrates must be derived from the breaking down of proteins. The amount of carbohydrates which can be formed from the

metabolism of protein is relatively small and is not sufficient to prevent the abnormal metabolism of fat. The reserve of carbohydrates in infancy and early childhood is relatively smaller than in the adult. Therefore, the acetone bodies should appear more quickly in starvation in early than in adult life. I am not familiar with any data which show how soon after the withdrawal of food the acetone bodies may occur in the urine at this age, but from clinical experience I am inclined to believe that they rarely occur from this cause under forty-eight hours. It is probable that when there is an abnormal accumulation of fat in the parenchymatous organs, as is often the case in disturbances of nutrition in infancy, that the formation of the acetone bodies may occur earlier and be greater in amount.

Considerable quantities of acetone and diacetic acid are regularly found in the urine in a large number of diseases accompanied by high fever, both during the course of the disease and during convalescence. (These bodies are especially common in the urine in pneumonia. Holt, for example, found that 70% of babies ill with lobar pneumonia showed acetoneuria.) The acetone bodies are also very frequently found in diseases of the gastrointestinal tract, especially when there is a diminished ingestion of food and a disturbance of the digestion of the carbohydrates.

Few who have not examined the urine of children regularly for the presence of acetone and diacetic acid realize how frequently they are present. It is a routine procedure at the Children's Hospital, in Boston, to examine the urine for acetone and diacetic acid, as well as for albumin and sugar. They are found so often that no attention is paid to their presence, unless there are some symptoms of acid intoxication. Holt recently stated that acetone was found in 30% of the urines of 200 consecutive young children at the Babies' Hospital, in New York. A pediatrician in Boston told me the other day that acetone was found in 70% of all the urines which were brought to his office during the past year. It is evident, therefore, that the mere presence of the acetone bodies in the urine in children, while it denotes an abnormal condition of the metabolism, does not justify the assumption that the child is suffering from acid intoxication in the absence of other symptoms of this condition.

*Diagnosis of Acid Intoxication.* How, then, is acidosis, or acid intoxication, to be recognized? It must, of course, under ordinary clinical conditions be recognized by finding the acetone bodies in the urine. (It must be remembered, however, that the mere presence of a small, or even of a considerable, amount of these bodies does not justify a positive diagnosis of acid intoxication.) (Better tests are the examination of the blood for the presence of abnormal acids, the determination of the amount of ammonia excreted in the urine and its relation to the total

nitrogen excretion, and the determination of the carbon dioxide coefficient in the expired air.)

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(The most characteristic symptom of acid intoxication in infancy and childhood, outside of the presence of considerable amounts of the acetone bodies in the urine, is a peculiar type of dyspnea or, rather, hyperpnea, without cyanosis.) The peculiarities of this type of respiration are that the rate of the respiration is increased, and that both inspiration and expiration are prolonged, the normal relation between the two being preserved. (Another evidence of acid intoxication which is very frequent in infancy is a diminution in the output of urine, complete anuria being not at all uncommon. It is possible that in such instances the primary cause of the accumulation of acids is the disturbance of elimination through the kidneys.) Vomiting is very common in acid intoxication in both infancy and childhood. There is, however, nothing characteristic about the vomiting in acid intoxication, and vomiting occurs in many other conditions. Vomiting, therefore, even when excessive, does not of itself justify a diagnosis of acid intoxication. Acid intoxication is not infrequently associated with diarrhea. There is, however, nothing characteristic about the diarrhea. In many instances of acid intoxication, moreover, the children are constipated. The breath not infrequently has a peculiar aromatic odor. This odor is, however, not always present and is decidedly difficult of recognition. The cheeks are often flushed and the lips of a peculiar cherry-red color. There is often, also, a white line about the mouth. None of these signs are, however, pathognomonic. It seems evident, therefore, that the recognition of acid intoxication is a much less simple matter than would appear from the statements of many physicians and of the newspapers.

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*Acid Intoxication in Recurrent Vomiting.* It has been recognized for some years that certain cases of what is commonly known as recurrent, periodic, or cyclic vomiting are associated with the presence of the acetone bodies in the urine. In most of these instances it is probable that the acetone bodies are simply a manifestation of the inanition resulting from the vomiting and the consequent starvation. In others it is presumable that the symptoms are due to an acid intoxication. (The reason for this presumption is that in certain instances the acetone bodies are found in large amounts in the urine at the very beginning of the symptoms, at a time when they could not possibly be due to inanition.) Moreover, the symptoms cease with the disappearance of the acetone bodies.

*Acid Intoxication in Diarrhea.* The acetone bodies are also found not infrequently in the course of severe diarrheal conditions in infancy and early childhood. (The majority of infants with severe diarrhea die, however, without any evidences of acid intoxication, either in the urine or symptomatically. On the other hand, a certain number of infants with severe diar-

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rheas not only show large amounts of the acetone bodies in the urine, but show the typical hyperpnea and have a marked diminution in the output of urine. The majority of these babies die.) In many of these instances, however, the symptoms of acid intoxication may be relieved by suitable treatment, but the babies die, after a lapse of twelve or twenty-four hours, without further symptoms of acid intoxication. It seems evident that in these cases the acid intoxication is a secondary manifestation and not the cause of the disease, although it may be in certain instances the cause of death.)

*Acid Intoxication in Infections.* The acetone bodies are also found in large amounts in association with vomiting, with or without diarrhea, in infants and young children in the course of, or following, various infectious diseases. These diseases may of themselves not be serious. (They are very likely to be relatively mild infections of the nasopharynx, tonsillitis, or "grippe.") In these instances the symptoms of vomiting and prostration are entirely out of proportion to the severity of the original infection. When death occurs in these cases, it may be that it is due to acid intoxication. If so, it is evident, however, that the original cause of the disease is not acid intoxication and that the acid intoxication is due to some disturbance of the metabolism resulting from a toxemia or from a bacterial infection.

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*Epidemics of Acidosis.* It is because of the occurrence within a short time of a number of cases of acid intoxication of this type, secondary to the infectious diseases, that we have heard so much in the past few years of epidemics of acidosis. It is evident, however, from what we know of the etiology of acidosis, that an epidemic of primary acidosis is an impossibility. When a series of cases of acid intoxication occurs, the explanation is simply that a number of cases of secondary acid intoxication have happened to occur in the course of an epidemic of some other disease. Much attention was attracted, two years ago, by a so-called epidemic of acid intoxication in Concord, N. H. This series of cases has been described by Metcalf. In 70% there was a well-defined infection of the respiratory tract or its adjacent cavities. In the others there was no suggestive etiologic point. A great deal has appeared in the newspapers during the past few weeks about an epidemic of acidosis in Boston and vicinity. I have seen a few of these cases in consultation and have known about a good many others. In the vast majority of these cases no examination of the urine was made. To the best of my knowledge and belief, no examination of the blood, of the ammonia content of the urine or of the carbon dioxide coefficient of the expired air was made in any case. In the vast majority of the cases, therefore, there was no scientific justification whatever for the diagnosis of acidosis. It is probable also that in the vast majority of instances the diagnosis of acidosis had no reason-



able clinical justification. In fact, it is probable that very few of the cases reported as acidosis had acidosis at all! How little basis there could have been for the diagnosis in many instances is evident when we consider, for example, that many of the so-called cases of acidosis occurred in the practice of a physician who, according to the newspapers, saw six hundred cases in his office and made nine hundred house visits in one week. If we stop to reckon how much time he could have given to each visit, it is evident that his examinations must have been very superficial and that the work in his laboratory must of necessity have been very limited. Further evidence of the general carelessness in diagnosis at this time is the fact that three cases were admitted to the Boston Children's Hospital on the same day with the diagnosis of acidosis. One of these children had pneumonia and another appendicitis. The third did have acetone in the urine, but was sitting up and crying for eggs the next morning.

It is true, nevertheless, that some very strange and unusual cases occurred during this period. It is also true that in a number of these cases large amounts of the acetone bodies were found in the urine and that, when these cases recovered, the acetone bodies first disappeared from the urine, while in the fatal cases they persisted. The histories of a few of these cases, which I myself saw are as follows:

CASE 1. A girl, of twenty months, vomited and had loose stools, Dec. 23. She was given bicarbonate of soda and did not vomit for the next two days, but continued to have four or five loose, greenish stools daily. During this time she took only a little barley water. She began to vomit again on the morning of December 26, and continued to vomit constantly from that time on. The movements from the bowels became very frequent and loose. It was impossible to tell how many she was having, however, because she was having treatment by seepage. She was seen at noon, Dec. 27.

She was conscious, but very feeble. She had evidently lost considerable weight. She was a little dusky. The heart was feeble and there were evidences of edema of the lungs. The abdomen was full, but otherwise negative. The liver and spleen were not palpable. There was nothing else abnormal. The urine had not been examined for the acetone bodies. The bicarbonate of soda which she was taking by mouth and rectum was continued and glucose was added to it. She died during the afternoon. There was no autopsy.

CASE 2. A boy, of 28 months, that had been perfectly well and had eaten nothing unusual, suddenly began to vomit at 5 p.m., Dec. 31. He continued to vomit about every fifteen minutes up to the time that he was seen by his physician, two hours later. He was then profoundly collapsed, pale and with cold extremities. The temperature in the groin was 96.4° F. He was given bicarbonate of soda by mouth, but this was vomited. When I saw him at 10.30 p.m. he had rallied a little. His color was good. There was no odor of acetone in the breath. He was conscious, but much prostrated. The phys-

ical examination was absolutely negative. He vomited a little watery mucus during the examination. The urine, which was obtained a few hours later, contained large amounts of the acetone bodies. Bicarbonate of soda and glucose were given by the mouth, but were not retained. He continued to vomit up to three o'clock the next morning. Castor oil and calomel, which had been given during the night, brought away several very large, foul movements about this time. The vomiting immediately ceased and he was apparently rapidly getting well. Twenty-four hours later, however, all the symptoms returned, and he died in a few hours. The autopsy showed a marked general acetone odor of the body. The tonsils were enlarged and contained numerous small foci of pus. The liver was fatty and the kidneys somewhat degenerated. There was marked edema and injection of the brain. Streptococci were found in the tonsils, brain and spinal fluid. They were not found in the other organs or in the blood. Staphylococci were also found.

CASE 3. A boy, nineteen months old, was a little out of sorts on Dec. 27. He seemed all right, however, on the 28th. He had a good stool the morning of the 29th as the result of castoria given the night before. He did not seem very well during the morning, and his physician was called at 2.30 in the afternoon. He prescribed bicarbonate of soda, which was given at once. He vomited about 3 p.m., but not again until 7.30 p.m., when he began to vomit every few minutes and to have loose, watery, foul stools. He was seen at 9.45 p.m. The physical examination was entirely negative. There was no aromatic odor to the breath. He vomited a large amount of watery material several times and had two large, watery stools, slightly brownish and with a very foul odor, during the examination. He continued to vomit and have watery movements throughout the night, and at 6 a.m. the next morning had a convulsion and died. The urine was not examined.

In this instance the symptoms were typical of those of cholera infantum, and at any other time no other diagnosis would have been considered.

CASE 4. A boy of thirteen months, perfectly well, except that he had had a slight cold for several days, began to vomit at 4.30 p.m., Dec. 30. He vomited three times. He was given castor oil at once and thoroughly cleaned out. He was given bicarbonate of soda during the night and repeated enemata of bicarbonate of soda. He was started at once on barley water, to which lactose was soon added. The next day he had many stools, which were not foul. His temperature was 104° F. in the morning, 106° F. in the afternoon and 103° F. at midnight. There was no recurrence of the vomiting. The treatment was continued. He was much better on the morning of Jan. 1, and rapidly recovered. His physical examination was always negative. His breath did not smell of acetone. The urine was not examined. There is no proof, therefore, that this child had an acid intoxication. Acid intoxication would probably not have been thought of at any other time. Nevertheless, he responded to the treatment which has seemed most effectual in this condition, that is, the

immediate emptying of the intestinal tract and the administration of alkalis and carbohydrates.

CASE 5. A girl, sixteen months old, was a little restless on Jan. 21. She began to vomit on the 22d and had two loose stools. Her physician was called on the 23d. He found a considerable amount of acetone in the urine, ordered bicarbonate of soda and carbohydrates by the mouth and gave enemata of bicarbonate of soda. She vomited several times during that day, her temperature gradually going up to 102.4° F. There was acetone in the urine the morning of the 24th. She was seen at 4 p.m. on the 24th. She had evidently lost much weight, her cheeks were flushed and her lips cherry red. Her respiration was rapid and deep. The physical examination was otherwise negative. She was given castor oil and put on barley water with dextri-maltose, while the bicarbonate of soda was continued. She promptly recovered.

**Pathology.** Little or nothing is known as to the pathological changes in this condition. Degenerative changes have been found in the parenchymatous organs, but nothing in any way pathognomonic. In two cases in which this diagnosis had been made, which were examined recently in Boston by Dr. Magrath, the bodies both had a marked acetone odor, the tonsils showed definite evidences of infection in both, the livers were fatty and the kidneys somewhat degenerated. There was marked edema of the brain in both instances. Streptococci were found in the tonsils, brains and cerebrospinal fluid in both. In one the staphylococcus aureus was also present. No bacteria were found in the other organs or in the blood in one case, and no cultures were made from the other organs in the other case.

**Treatment.** The cause of the symptoms in acid intoxication being the withdrawal of bases from the organism as the result of an excess of acids in the system, it is evident that the treatment indicated is the introduction of alkalis into the system to neutralize the acids in the body and in this way to prevent the further withdrawal of bases from the body and to allow the reaccumulation of the bases which have been abstracted from the body. The best alkali to use is the bicarbonate of soda. This may be given by the mouth, by the rectum, subcutaneously or intravenously. It is preferable to give it by the mouth if it can be retained. It is best given in water, but, if desired, the taste may be disguised by orange juice or grape juice. It is seldom wise to make the concentration of the solution stronger than 1:20. It is usually better to make it 1:30 or 1:60. Stronger solutions are almost certain of themselves to cause vomiting. The general feeling is that as much soda should be given as possible. It is very probable, however, that excessive amounts of soda may of themselves cause vomiting and diarrhea, and perhaps poisoning. I am very confident that in a considerable number of instances in which I have

been called in consultation to see cases of supposed "acidosis," the vomiting and diarrhea were the result of excessive doses of bicarbonate of soda and not symptoms of acid intoxication. In one instance of which I know, in which a baby of fourteen months received three ounces of dry bicarbonate of soda in twelve hours, the baby was collapsed and almost moribund, apparently as the result of the large amount of soda. Other alkalis may be used, but are, as a rule, not as satisfactory as bicarbonate of soda.

Bicarbonate of soda should also be given by the rectum. The solution may be stronger when it is given in this way. The solution is more often retained when it is given by seepage than by enema. Seepage is, in my experience, the more satisfactory method. The solution used for seepage should ordinarily not be stronger than 1:10. It is, of course, useless to attempt to give soda by rectum when there is diarrhea.

(When bicarbonate of soda is given subcutaneously, a 2% solution should be used. When given intravenously, a 4% solution is strong enough. The amount to be given must depend, of course, on the age and size of the patient.)

The acetone bodies being formed chiefly from fat in the absence of carbohydrates or when there is a disturbance of the carbohydrate metabolism, another indication is to administer an easily absorbable and utilizable carbohydrate. Such a carbohydrate is glucose or dextrose. This may be given by mouth or by rectum. It is usually advisable to give the soda, both by mouth and by rectum, in a 10% solution of dextrose. In urgent cases dextrose may be given intravenously in the strength of 2½% of dextrose in normal saline solution. Kahlbaum's is the only readily available pure dextrose. When the vomiting stops and the patients begin to improve, the carbohydrates may be added in the form of the cereal waters or jellies, to which one of the various maltose-dextrin mixtures or lactose may be added.

Practically, the usual treatment is the administration of a 5% or 10% solution of bicarbonate of soda in a 10% solution of dextrose freely, both by mouth and rectum. In my experience the immediate and thorough cleaning out of the intestinal tract has seemed to have more effect on the outcome in those cases of acid intoxication secondary to infections or to diseases of the intestinal tract than any other single procedure.

It must be remembered that this treatment is simply for the condition of acid intoxication, and that this condition is not a primary, but a secondary one. Therefore, even if the condition of acid intoxication is relieved, the original causative disease remains. The patient may die, therefore, even after the acid intoxication is cured.

## THE FREQUENCY OF EPILEPSY IN THE OFFSPRING OF EPILEPTICS.\*

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THE present paper is an attempt to determine the extent to which epilepsy is transmitted directly from parent to offspring. In order to secure available data for this work, the records of 1536 patients, whose epilepsy had brought them under the care of the Monson State Hospital, were examined. Of these, 236 had been married, but in only 175 were the records and available information sufficient to render them suitable for study, and it is this latter group which forms the basis of this paper.

One hundred and thirty-eight of these marriages resulted in one or more offspring, while the remaining 37 were sterile. Eighty-nine were females, 81 were males. The total number of children born of these 138 marriages was 553, an average of four to each mating. Only the epilepsy in these offspring was recorded, no consideration being made of other mental or nervous disorders at this time.

Before beginning my discussion I would call attention to some of the statements in the literature regarding heredity in epileptics. Spratling<sup>1</sup> found epilepsy as a hereditary factor in 16% of his cases; Doran<sup>2</sup> in 19.3%; Binswanger<sup>3</sup> in 11%; Dejerine<sup>4</sup> in 21.2%; Turner,<sup>5</sup> in a study of 676 cases, finds 37.2% with an epileptic heredity, but Turner's figures include both direct and collateral heredity, as a further analysis of his cases show that only about 20% was transmitted from parent to offspring. Turner further states: "The most common cause of epilepsy is ancestral epilepsy." It is not surprising to find that Turner's private cases showed more epileptic heredity than his hospital cases, the former revealing epilepsy in 46.7% in the ancestors and collaterals, and the latter 35.9%. This is accounted for by the more complete family histories in the private cases.

With just a word we may dismiss the group of 37 cases without children; they represent a little over one-fifth of the entire group; so that we can say, roughly, that one out of every six (236-1536) of our new admissions was married, and 80% of these marriages resulted in one or more offspring. In 18 of these 37 cases the convulsions began previous to marriage; in 19 cases they began after marriage. Of this latter group 10 were males and 9 were females.

The remaining 138 cases, with histories of their ancestors and a careful study of the mental and social condition of their offspring, might well serve as the nucleus for a volume on epileptic heredity, but this would require the services of one or more social and eugenic workers for a long period of time. I appreciate that this paper will have no such value as one worked out with the aid of a social worker, yet I cannot

not but feel that it may stimulate some interest in the study of the patients confined in our institutions.

Aldren Turner,<sup>6</sup> quoting Gowers, states: "It is less easy to obtain a hereditary history as life advances and the preceding generation passes out of the reach of questions."

To what extent the innocent heir to an epileptic predisposition can control those environmental factors which would act as the exciting cause of a life-long malady, rendering the patient a burden to himself, his family and society at large, is only one of the many problems which the study of the offspring of the insane and epileptic presents.

In this paper I can state only my findings in this rather small series of cases, appreciating that it will have only a relative value. If it be that my views lean rather toward optimism than pessimism for the outlook of those predisposed by their ancestors to epilepsy, I am sure they will not more than neutralize some of the gloomy forecasts sent abroad by those who label every headache migraine, all muscular spasms epilepsy, and every man who takes a glass of beer an alcoholic.

The group of married cases which have been retained for study are further divided:

Total number of married cases retained for study .....	138
Epilepsy before marriage .....	47
Males .....	16
Females .....	31
Epilepsy after marriage .....	91
Males .....	52
Females .....	39

The average duration of the epilepsy in the 47 cases having convulsions before marriage was 11.9 years in males, and 8.1 years in females; while the average number of years elapsing between the marriage and the epilepsy in the 91 cases where the convulsions came on after marriage was 14.6 years in males, and 12.4 years in females. Of the 39 females having their first convulsion after marriage, pregnancy was the exciting cause in 12 cases (30.8%). There is no one exciting factor among the males that gives such a corresponding high percentage as pregnancy in the females.

Another point worthy of note in this study is the fact that nearly twice as many females as males marry with the knowledge of their epilepsy. Doubtless it is easier for a woman to conceal the fact of her epilepsy under the guise of menstrual disorders, fainting spells, hysteria, etc., as her social condition confines her more closely to the house, where she is less likely to be observed during a convulsion. The large number of cases coming on after marriage in males includes, without doubt, many cases where arteriosclerosis and alcohol were the exciting factors. So it may be said that the only incident in married life that would be likely to act as an exciting cause of epilepsy would be pregnancy.

\* Read before The New England Society of Psychiatry, Waverley, Mass., September 28, 1915.

As previously stated, the total number of children born in consequence of these 138 marriages was 553,—309 males, and 244 females. It is with the epilepsy in these offspring and no other mental or nervous disorders that this paper is concerned. Collateral and dissimilar heredity will receive nothing more than mention at this time.

In the entire group (138 cases) direct-similar heredity in parents was found in only 8 cases, viz.,

Mother alone .....	3 cases
Father alone .....	4 "
Mother, maternal grandmother and maternal great grandmother ...	1 case

Therefore, it will be seen that only 5.8% of the ancestors of these patients had epilepsy. It may also be stated at this time that only one of these cases with epileptic heredity had epileptic offspring.

The personal histories of the offspring were obtained by various methods. In some instances the patients themselves, or their relatives and friends, were able to give information that was very satisfactory in personal interviews; while in the other and more numerous cases the desired information had to be obtained by means of correspondence. First, a printed blank was sent to every desirable case, asking for detailed information concerning the patient and patient's children. It was necessary in some cases to follow up the blank with a personal letter in order to clear up some obscure point. Then, with the information in their records, the data was compiled. Appreciating that the information obtained by such a method is subject to many sources of error, I have made no attempt to determine nervous or mental derangement other than the epilepsy in the offspring.

The epileptic convulsion, with its clinical features and the sequela, is a phenomenon that cannot easily pass unnoticed even by the most unobserving. Therefore, the method adopted (not by reason of choice, but because there was no other available at this time) would be more applicable to the study of epileptics than of feeble-minded or insane, as the mental status of the informant would not be of such importance in determining the question of convulsions as it would in determining the mental status of another.

Of the 553 offspring resulting from the 138 marriages where one of the parents was an epileptic, it was possible to obtain a history of convulsions in only 10 of these children. In two instances there were two children having convulsions in the same family; so that in only 8 of the 138 matings has the epilepsy made itself manifest to the present time. Six of these epileptic offspring died in early infancy of convulsions, leaving some doubt as to whether they would have become confirmed epileptics; of the remaining four the age at onset varied from the second month to the fifteenth year; the youngest

offspring where information was received was four days old, the oldest fifty-five years. There are still about 225 children who are under 20 years of age; that is, they are still in the zone where 75% of the epilepsies begin; but only 6 of these are under one year of age and 16 between the first and fifth years, while the majority are between the fifteenth and twentieth years of life.

Gowers' states: "More than a quarter of all cases begin under the age of 10 years; nearly half between 10 and 20; about one-seventh between 20 and 30; one-sixth between 30 and 40; about 2¼% between 40 and 50; 1% only between 50 and 60; after which 0.5% only occur; 74% of the total number of cases begin under 20."

It would hardly be worth while at this time to make any conjectures as to what the probable outcome of these epileptic offspring will be. Much will depend upon the environmental conditions and external factors with which they come in contact. Rickets, gastro-intestinal diseases, infectious disorders, head injuries and alcoholism are only a few of the shoals upon which the predisposed might be wrecked.

In the cases past 20 years of age, the chance of their becoming epileptics, although a factor to be considered, is comparatively less than in the younger group. It is my opinion that heredity will not play a very important part in the epilepsy of those 328 individuals now over 20 years of age.

Spratling\* states: "The average age at onset in cases with epileptic family histories was 10 to 17 years"; and, in a recent study, I<sup>1</sup> found that in 157 patients with heredity the average age at onset was 11 years. Although I know of no reason why hereditary defects might not lie dormant in an individual two or more decades before making themselves manifest, yet such a history is comparatively rare. (See table).

From this table it will be noted that six of the offspring were congenital epileptics, all of them dying in early infancy from convulsions. Two of the cases are arrested: the offspring of A. D. had convulsions at four years of age and has had none since, is now 21 years of age; the offspring of E. T. had convulsions between the second and seventh years and has had none since, is now 43 years of age. The offspring of E. B., and L. P., the two remaining cases, are confirmed epileptics, one being confined at Monson State Hospital, the other, at Hospital Cottages for Children in Baldwinville. All the cases excepting one, E. A. T., developed their epilepsy after marriage, from one to 31 years elapsing between the marriage and the onset of convulsions. The exception (E. A. T.) began having convulsions at 14 and was married at 27.

In three cases, P. F., C. D., and E. T., the offspring had convulsions before the parent. In only one case, L. P., was there any history of direct heredity, and in only two cases could an exciting cause be isolated, both being attributed



Name of Patient.	Heredity.	Exciting Cause.	Relation of Epilepsy to Marriages.	History of the Epileptic Offspring.
P. P.	None	Trauma	Epilepsy 9 years after marriage.	Two children died in infancy from convulsions, exact age not given. (Only two children.)
C. D.	None	Trauma	Epilepsy 9 years after marriage.	Two congenital epileptics—both died from convulsions. (Five boys and five girls.)
A. D.	One sister epileptic	None	Epilepsy 3 years after marriage.	Youngest had convulsions between the fourth and fifth years—none since—present age 21. (Two boys and three girls.)
E. T.	None	None	Epilepsy 31 years after marriage.	Oldest had convulsions between the second and seventh years—none since—present age 43. (Two boys and six girls.)
E. B.	None	None	Epilepsy 1 year after marriage.	Oldest child has had convulsions since thirteen years—is now seventeen—confined to Baldwinville. (Three boys.)
E. S.	None	None	Epilepsy 3 years after marriage.	Second child died in convulsions at the end of first week. (Three boys.)
L. P.	Mother epileptic	None	Epilepsy 24 years after marriage.	Youngest had convulsions which began at fifteen years. (Two boys and four girls.)
E. A. T.	None	None	Epilepsy 13 years before marriage.	Oldest died at fourth month during a convulsion. (One boy and one girl.)

to head injuries. The case, P. P., has since come to autopsy, but there was no evidence to indicate that trauma might have caused the epilepsy.

#### SUMMARY.

1. The records of 1536 epileptic patients admitted to the Monson State Hospital, showed that one out of every six was married.

2. Eighty per cent. of the marriages resulted in children.

3. One hundred and thirty-eight marriages resulted in 553 offspring, an average of four to each marriage.

4. Of the 553 offspring it was possible to obtain a history of epilepsy in only 10 cases (1.8%).

5. Of these 10 epileptics, 6 died in infancy, two became confirmed epileptics, and two cases are arrested, one for 17 years, the other for 36 years.

6. The study of the family history in 138 epileptics revealed epilepsy in one of the parents 8 times, and the study of the offspring of these same patients showed that it had been transmitted 10 times; but in two instances there were two children in the same family who had convulsions, so that the epilepsy was inherited and transmitted in 5.8% of the cases.

7. These figures correspond more closely with the recent work of Stuchlik,<sup>10</sup> who found inheritance of epilepsy in epileptics direct from parent in 4.1% of 176 cases, than they do with the findings of Turner, Doran and Binzwaenger.

8. From the above it would appear that epilepsy is transmitted directly from parent to offspring less frequently than we have heretofore been led to believe.

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<sup>8</sup> Sprattling: *Epilepsy and Treatment*, p. 71.

<sup>9</sup> Thom: *Relation of Genetic Factors to Age of Onset*, *Boston Med. and Surg. Jour.*, Sept. 22, 1915, Vol. clxxv, No. 12.

<sup>10</sup> Stuchlik: *Alcoholism and Epilepsy*, *Abstract, Journal A. M. A.*, No. 84, p. 948, Vol. lxxiv, No. 11.

### Clinical Department.

#### FALSE ANEURYSM OF BRACHIAL ARTERY.

By D. PEARCE FENHOLLOW, M.D., BOSTON.

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ANEURYSMS are always of interest and probably more especially so at the present time when there are so many caused by implements of warfare. Even very small pieces of flying shell may damage the blood vessels, as is illustrated by the following case:

T. M., age 24, private in the 5th Sherwood Foresters, was wounded by an exploding shell on October 14, 1915, while making an advance at Hulluch. He was admitted to the American Women's War Hospital on October 19. Examination at that time as follows: Well developed and nourished man, in considerable pain. General physical examination: Negative, save as follows: Right upper arm and forearm very much swollen, upper arm tender and markedly ecchymosed. Over inner edge of biceps, about 1 inch from median line and about junction of middle and upper thirds, is a small wound 3/16 of an inch long by 1/8 of an inch wide. No foreign body can be felt. Thumb and index finger hypersensitive; sensation in other fingers normal. Patient cannot extend or flex fingers. X-ray

(Fig. A) shows minute foreign body in location of wound. Circulation of forearm and hand good.



FIG. A.—X-ray print of arm. Shows minute piece of shell below A. Foreign body shows only as a small dark line as the object was presented edgewise.

Nov. 1. Arm has been baked daily and also treated with dry heat. Swelling has now disappeared, but a distinct thickening may be felt along the course of the brachial vessels, suggesting a thrombo-phlebitis. Considerable tenderness along this region. Radial pulse good, not irregular. Patient complains of marked hypersensitiveness of all fingers, also shooting pains in arm, and is unable to bear any pressure on fingers or dorsum of hand.

Nov. 20. Thickening along course of artery still persists. At a point 2 inches below tendon of pectoralis major and at inner side of biceps at a point corresponding to the level of the wound is a small area  $1\frac{1}{2}$  inch in diameter, over vein, which pulsates with a forcible and visible impulse, but no thrill can be felt. On auscultation a distinct, though faint, bruit may be heard.

Nov. 25. Area on inner side of biceps the same as at last note. On inner edge of triceps at a point slightly higher, is an indurated area 1 inch in diameter, pulsating (transmitted impulse?) and over this area can also be heard a bruit of a lower note than



FIG. B.—Photograph of arm just previous to operation. Shows a small discoloration just under letter A, which is the wound of entrance. B, pulsating tumor mass. The curious discoloration of upper aspect of arm is a tattoo mark.

that in the original area. No edema of arm. Pain practically the same.

December 1. Tumor mass distinctly larger than at last note (Fig. B). Distinct bruit over whole area occupied by tumor mass with a distinct palpable and visible impulse. Immediate operation deemed necessary.

Dec. 2. Operation; ether. Incision made in axilla. Dissection carried down through brachial plexus and first part of axillary artery identified and freed. Crile clamp applied to control hemorrhage. Incision was then carried down over tumor mass. Deep tissues found edematous, and, owing to the absorption of the old hematoma, there was very much scar tissue which made dissection very difficult, as structures and tissues could not be easily recognized. Tumor mass dissected free. A minute piece of shell (Fig. C) found adherent to



FIG. C.—Photograph of shell fragment removed at operation. Photograph shows actual size of fragment. (a) Shape and outline of fragment; (b) its thickness.

and penetrating the wall of the brachial artery. Distinct capsule found on tumor mass (Fig. D). This was opened and a considerable amount of organizing blood clot was evacuated. A tear of considerable size was found in the brachial artery,



FIG. D.—Photograph taken during operation after the tumor mass A, had been exposed. B shows a vein running across the tumor mass. C, the fascia, and D, Crile clamp, which was placed on the axillary artery.

and the basilic vein also was torn. It was not possible to suture the tear in the artery, so both artery and vein were tied above and below the wound. The artery was probably tied above the profunda branch, which could not, however, be identified. The median nerve was found bound down in scar tissue and freed. Wound closed in layers, rubber dam drainage. Good ether recovery.

Dec. 6. Following operation, hand and forearm have been somewhat cyanotic, very little edema. Pain in hand has been apparently the same until today, when it disappeared. Today hand of good color, warm and not hypersensitive. Perceptible

radial pulse can be felt. Wound dressed, healing by primary union.

Dec. 20. For the past two weeks patient has been making an uneventful convalescence. Wound healed by primary union. There is considerable pain, although not so severe or so frequent as formerly. Pain now localized to thumb and index finger.

Jan. 1. Patient has been having daily massage and passive motions of fingers. Movements of fingers and arm are increasing. Pain has practically gone. Tips of index finger and thumb feel numb. Color of hand and fingers good. Good radial pulse. Patient transferred to 4th London General Hospital for electrical treatment.

It is interesting to note the very small size of the fragment of shell which caused so much damage. Apparently what took place was that the vein and artery were both punctured by the entrance of this piece of shell, which caused a large and constant amount of hemorrhage into the arm. As the arm became tense, the hemorrhage was decreased, and as the hematoma began to absorb and scar tissue was formed, the tumor mass, or blood clot, became more localized, and in localizing formed a false aneurysm.

## Medical Progress.

### REPORT ON DERMATOLOGY.

By JOHN T. BOWEN, M.D., BOSTON.

(Concluded from page 530)

#### HUMAN SERUM AND BLOOD IN TREATMENT OF PSORIASIS AND OTHER SKIN AFFECTIONS.

At the meeting of the American Dermatological Association for 1915, two papers\* on this subject were read: one by Howard Fox, the other by Trimble and Rothwell. Neither of these writers was able to see a hopeful future for this, so far experimental, method of treatment. Fox stated that up to the time of writing, sixty patients suffering from different forms and stages of psoriasis, had been treated by a combination of chrysarobin ointment and injections of autogenous serum, three hundred injections in all being given. From this experience Fox is able to uphold his former statement that serum when used alone is of no value, but that it somewhat accentuates the action of the chrysarobin. He states that it is possible that the good results are due not to the serum, but simply to the blood-letting, or even, as has been suggested by others, to the increased vigor and enthusiasm with which the new treatment is carried out. In any event, this treatment does not prevent the appearance of relapses, which occurred in the usual percentage of cases. The results in some of his cases were partial or com-

plete failures, in one case, however, the eruption disappearing after several months after cessation of treatment, which shows how the affection sometimes disappears spontaneously. In these cases an autogenous serum was used. In twenty-one other cases of skin diseases, mostly of a pruriginous character, both autogenous and heterogenous serum and blood were used, and these were chiefly cases that had proved resistant to the older methods. In most of these cases the results were very unfavorable, the best results being in dermatitis herpetiformis, where they were very satisfactory. Seven cases of this affection were treated, one a woman of eighty, who had had the bullous form for three months. Injections extending over a period of six weeks produced a gradual but steady improvement of both subjective and objective symptoms. No local treatment was used except vaseline to soften the crusts. In three of the cases the results were unsatisfactory. There was no benefit recorded in four cases of eczema, nor in two cases of lichen planus, while one out of three cases of chronic urticaria showed gradual improvement. There was also improvement in a case of prurigo. No ill effects were noted from these different experiments. The injections of autogenous serum were followed by no disagreeable effects except that one patient with psoriasis complained of general malaise for twenty-four hours and had a slight rise in temperature. There were, however, occasional anaphylactic symptoms lasting two or three days from the injection of heterogenous serum and blood, and after intramuscular injection of blood there was considerable discomfort lasting often for some days. His conclusions are that injections of autogenous serum alone have no effects on psoriasis, but when given with chrysarobin, better results seem to be attained in certain cases than when chrysarobin is used alone, and this may be due to the blood-letting or the greater enthusiasm for the new method. In other skin diseases, with the exception of dermatitis herpetiformis, the results are disappointing. There is no danger in the method.

Trimble and Rothwell state that the claims based on this treatment are either that the serum injections alone cause the disappearance of the lesions, or that the psoriatic foci are so sensitized by the serum that a weak external application (chrysarobin 2%) can easily remove them, the same lesions being resistant to strong external agencies, without the serum injections. The only theory or reason given is that probably some change takes place in the serum outside of the body. For the study of this question, fifty cases of psoriasis were selected: thirty of these were given the serum treatments, the remaining twenty being used as controls. The controls were divided into two groups of ten each, one grouping being placed on 2% chrysarobin ointment, and the other on 10% white precipitate ointment. Each patient who took the serum injections was given an ointment of 2% chrysaro-

bin after the sixth treatment, but as far as possible the injections were continued until the total number reached ten.

In twenty-eight of the thirty patients who received the serum injections, there was absolutely no change in the skin appearances before the ointment was applied; after that there was a fair rate of improvement.

As to the controls, they seemed to progress if anything more quickly and favorably than the injection cases, but this of course may have been a coincidence. It was surprising to find that a 2% chrysarobin ointment seemed to act as effectively, and to produce a dermatitis as readily as a 10% ointment. In one young woman, this 2% ointment produced an intense dermatitis. The injections were given at weekly intervals, and active serum was used in every case.

The writers' conclusions are that autogenous serum injections alone are worthless for the cure of psoriasis, and that autogenous serum as an adjunct to weak chrysarobin ointment seems also worthless, as a patient who does not take the serum will improve as fast with the ointment alone. In typical uncomplicated cases the patches show no improvement until the external application is begun. Nevertheless this method is harmless when suitable antiseptic precautions are taken. But they believe that many patients who have been affected for years with persistent or frequently recurrent attacks of psoriasis, become discouraged or lax in the treatment, and are so stimulated by the idea of the new treatment that they devote themselves to it vigorously, and in this way derive more benefit from it.

In the discussion that followed the reading of these papers, several of the members recorded their belief that the autoserum therapy had some definite value, although only one expressed himself with anything like enthusiasm. Several had tried the method with absolutely negative results. There was further testimony as to its value in some cases of dermatitis herpetiformis.

#### LESSENED RESISTANCE OF THE SKIN.

Brocq\* rightly considers that this feature of diminished cutaneous resistance, although a phenomenon heretofore recognized and described, needs further elaboration and emphasis owing to the position it occupies in general cutaneous pathology. He attacks this question, however, wholly from the clinical point of view, leaving aside all hypotheses and theories.

In a general way, an individual's skin may be said to have a lessened power of resistance, when it does not act like those of the great majority of individuals in presence of irritants of every moderate intensity. Therefore, when this power of resistance is lost, agencies which would not produce any harmful effect when the power of resistance was normal, are capable of giving rise to various cutaneous lesions. The diminution of resistive power may be general, or re-

gional. When *general*, it is illustrated by congenital epidermolysis bullosa, where traumatism, at least in early life, may produce bullae on any part of the body. So, too, when a susceptibility to one or another substance, such as a preparation of mercury for example, has been established, irritation may be produced on any part of the body that has been in contact with the agent. When *regional*, the lessened power of resistance of certain places almost always follows traumatisms that have affected these regions. These traumatisms may be of almost any nature: prolonged contact with atmospheric agents, irritating agents of various kinds pertaining to professions, as surgeons, dentists, grocers, masons, plasterers, dyers, etc.; or to agents that are used in the toilet, such as soap, perfumes, cosmetics, depilatories, etc. These agents usually act slowly, producing at first light, later more severe, lesions. The normal power of resistance of the cutaneous tissues is gradually lessened, until at length a very slight cause may produce lesions. In order to get back to the normal state, it is necessary to keep the enfeebled part free for a long time from every kind of irritant, however slight. Sometimes, however, the lessening of the power of resistance is brought about suddenly by a violent traumatism, at a stroke, such as severe exposure to the sun, extremely irritating applications, etc. These localized diminutions of resistant power show how complicated this question of lessened power of resistance is in general, from the pathogenetic point of view. They show that it cannot be regarded as a simple matter of anaphylaxis.

The selfsame irritating agent, as the sun for instance, may act on tissue in a state of lessened power of resistance in a very varying manner. Thus, in the case of xeroderma pigmentosum, the effects of the rays are felt in all the cutaneous parts, epidermis, pigment, corium, vessels and glands. The same is true of hydroa vacciniforme. In other cases, the sun produces either a simple erythema, an erythema with desquamation, or simply an increase of pigmentation. Moreover, to show the complexity of the subject, a congenital diminution of resistancy may persist during life, as in hereditary epidermolysis bullosa, which usually occurs in families, xeroderma pigmentosum, etc., or it may become less marked with age, and even end by disappearing.

There are cases sufficiently numerous in which an irritant causes at first eruptions of a purely traumatic type, which are gradually succeeded by those of a special type, such as an urticaria, a true vesicular eczema, a papulo-vesicular eczema, etc. An instance cited is that of a woman of forty-five, who suffered from an artificial vesicular eruption of the scalp, face, and neck caused by a dye used for her hair. Thereafter the least irritation, from cold, from heat, weather, or digestive disturbance was sufficient to cause erythematous and oedematous outbreaks on the eyelids, ears, and adjacent parts. The



artificial eruption had created on the parts of the skin affected, *loci minoris resistentiae*, and upon these places the slightest irritating cause was sufficient to bring out an eruption. In subjects who have been either thus rapidly sensitized by effects less active, but prolonged and repeated, the skin sometimes ends by not bearing any contact, and agents that are apparently most inoffensive may be enough to provoke violent outbreaks.

May not this conception of diminished resistance of the tissues be extended to certain eruptions of internal origin, caused by the ingestion of harmful substances? It is known that antipyrine in certain people causes erythematous, or erythemo-bullous eruptions, which appear all ways at the same places. Each time the drug is taken, a predisposed person sees all the places that have been previously affected become the seat of a new outbreak, usually still more intense than the former ones, but often affecting places not hitherto attacked. Therefore, there seem to be places in which the normal resistance of the skin is lessened, and that under the repeated action of the toxic substances, these places are progressively multiplied. Of late, the attempt has been made to explain these phenomena on the new theory of anaphylaxis; but with this the writer does not attempt to deal, occupying himself with the diminution of power of resistance caused by external agents.

Brocq cites cases to show that the introduction of a toxic substance into the system, may greatly favor the appearance of lesions associated with a diminution of the resistant power of the skin; but it does not prove that the introduction of this substance creates this diminished power of resistance. Such was the case of a woman who had used very irritating applications to her breasts, at the same time that she was having injections of arsenic. The irritating applications caused a *locus minoris resistentiae*, upon which pigmentation from the arsenic established itself to a very intense degree. Hence he concludes that influences of internal origin may modify the normal resistance of the tissues, as renal insufficiency, gastrointestinal fermentations, disturbances in the functions of the vascular glands, etc., as well as nervous shocks. Climate may also be a factor. The quality of these eruptions and their morbid aspect are independent of the degree of resistance of the skin and of the external traumatism; they depend on individual idiosyncrasy and numerous occasional causes, which act upon the system at the moment when the attack occurs: if there has been an irritating action from food, it will be an urticaria; if renal insufficiency and intestinal fermentation, it will be a papulo-vesicular eczema; if there has been an excess of nitrogenous food, a psoriasis or parakeratosis.

The most important indication for treatment is the suppression of every external irritating

action on the skin tissues, so that they may regain their strength, and their normal power of resistance; a danger is the natural tendency that patients have to resume their occupations, before the skin has regained a sufficient resisting power. Next must come the endeavor to discover and remedy, any systemic disturbance, which may be aiding the diminution of resisting power of the integuments. But above all, it is needful to prevent exposure to the traumatisms that have been the cause of the diminution of resistance; and this, unfortunately, means in many cases changing a patient's duties or profession. When the latter is not a feasible course, the best possible must be done with the aid of palliatives.

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#### Book Reviews.

*The Untroubled Mind.* By HERBERT J. HALL, M.D. Boston and New York: Houghton-Mifflin Co. 1915.

Dr. Hall is well known for his articles on the treatment of neurasthenia and other functional nervous disorders, and this book, small as it is, shows the result of years of experience in both the study and treatment of these disturbances. Not an elaborate psychological analysis of functional nervous disorders intended for the use of specialists, it yet shows the marks of a profound psychological knowledge of these troubles. Written in clear and untechnical language, the reviewer knows of no book, unless it be the one by Dr. J. W. Courtney, more useful to put into the hands of an intelligent patient, as an aid to the necessary understanding and self-control required in the treatment of the neuroses. The titles of the chapters: *The Untroubled Mind; Religio Medici; Thought and Work; Idleness; Rules of the Game; The Nervous Temperament; Self Control; The Lighter Touch; Regrets and Forebodings; The Virtues; and The Cure by Faith*, give one some faint insight of the method of handling the subject, though not of the steady poise of mind, and sanity in the writer's treatment of it, which is a welcome contrast to so many of the books recently appearing in the field of the treatment of the neuroses, so often a mixture of incorrect psychology, lack of understanding of the neuroses, and of sentimentality, and pseudo-religion.

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## MASSACHUSETTS MEDICAL SOCIETY.

### THE ANNUAL MEETING.

THIS year the annual meeting of the Massachusetts Medical Society will be held in the Copley-Plaza Hotel, Boston, Tuesday and Wednesday, June 6 and 7. With an active and efficient Committee of Arrangements, and assiduous Committee on Scientific Papers and officers of the Sections, the program should interest a large number of the Fellows. The Section of Surgery will present a symposium on fractures, calling together the leading experts hereabouts and also one or two noted men from a distance. The Section of Medicine will consider the subject of the Allen treatment of diabetes and will have papers on acidosis and on nephritis, in an attempt to bring the latest ideas on these subjects to the general practitioner. The Section of Tuberculosis has arranged for papers on tuberculosis and syphilis, tuberculosis carriers, and what constitutes

clinical tuberculosis in adults. The Council and Society, at their business meetings, will consider amendments to the by-laws having to do with the date at which dues must be paid in order to count towards the dividends to the district societies; as to adding to the membership of the Council the ex-presidents and the librarian; and concerning the time for holding the annual meeting of the Society. The Council will hear the reports from the standing committees, elect officers, orator and committees, and transact the business of the Society.

Tuesday evening the Shattuck Lecture will be given by Dr. Theodore C. Janeway, of Baltimore, followed by a reception to the president, and music and refreshments. The literary exercises of the meeting of the Society on Wednesday morning will consist of a series of short papers on the contagious diseases of childhood by prominent specialists of the Society and by several from other states, ending with the annual discourse by Dr. David L. Edsall, of Boston. Wednesday afternoon has been set aside for a combined meeting of the Sections of Surgery and of Medicine at the Peter Bent Brigham Hospital on the subject of exophthalmic goitre, with a good array of readers and discussers. In the evening the annual dinner gives promise of being as much of a success as last year, judging by the speakers who have consented to speak and from the proved ability of the president as a presiding officer.

It is to be hoped that a great many Fellows will attend the different meetings and thus gain the advantages not only of hearing the papers and discussions but, by touching elbows and exchanging views with their brother practitioners, promote that sociability for which, in part, the Society was founded.

## SOME INCIDENTS IN THE LIFE OF BARON LARREY AFTER THE OVER- THROW OF NAPOLEON.

It is but natural that all those who were the closest to Napoleon during the Empire should be viewed with disfavor in the new order of things, no matter how much they may have accomplished, and Larrey suffered no inconsiderable hardships in the first years after his leader's exile.

Stewart gives us in his "Lives of the Paris Surgeons" an interesting account of some of

these hardships which were luckily to last only for a time. As soon as the news of Napoleon's death was received in France, some of Larrey's justly and hard-won honors were given to him again.

For a time, Stewart tells us, Larrey was removed from every post he had so honorably filled under the government, and his pension was also taken from him. One position only was left him, that of Surgeon to the Hôpital de la Garde, and this was not taken from him simply because the authorities feared the comment of the soldiers if Larrey was banished. He said at this time, "My existence is uncomfortable and full of reverses and misfortunes. . . . . To these irreparable losses was to be added that of all my revenues, including a pension of 3000 francs which had been granted me by the Emperor Napoleon as a recompense for the services which I had rendered to the wounded after the memorable battles of Lutzen, Bautzen, Wurchen and Wagram."

Stewart tells us that at this time Larrey's fortunes were so low that he despaired of repairing them in France and almost yielded to advice to seek his future in the United States. The Emperor of Russia at this time made him a most flattering offer to appoint him Surgeon-in-Chief of his armies, but patriotic ideals kept him from this step. Much of his time was now spent in literary work and the writing of parts of the famous history of his campaigns under Napoleon. One of his most precious remembrances is said to be that concerned with Napoleon's last hours at St. Helena when he spoke of "The Virtuous Larrey."

Shortly after this time Larrey had his honors restored to him, at least in part, and he was enabled to make a long-wished-for trip to England, where he was the guest of Astley Cooper, and enjoyed ample opportunity for seeing the practice of the representative surgeons in England and Scotland. He wrote a treatise, on his return to France, comparing the surgical methods of the two countries.

In the revolution of 1830 he was again active as a military surgeon and was decorated by Louis Phillippe for his great services on the field.

After this, Stewart tells us, the King of the Belgians asked him to go through the military hospitals of that country and superintend the different *ambulances*. This he did in the thorough manner that might be expected. After

this he was enabled to rest somewhat, and traveled in his native country and in Italy. In almost every place he passed through were some of the soldiers of the Imperial Guard, and these old campaigners were overjoyed to see him again. Some of them, though crippled, walked for miles to see him and followed his carriage for long distances so as to keep sight of him as long as possible.

He had at this time seen more military service than any living man. For fifty-three years he was with the army, and was in twenty-one single and five double campaigns, which were the scenes of many deeds of heroism on his part. The only wound that Napoleon ever received was treated by Larrey, and this was not a battle wound, properly speaking, but was due to a kick on the instep from his own horse. This was not even serious.

After a brief trip to Africa, where Larrey inspected the military hospitals, he returned to France and was taken ill at Lyons, where he died on the twenty-fifth of July, 1842. Thousands of persons attended his burial, and to the soldiers of the Guard his death was a calamity second only to that of Napoleon himself. To all his compatriots it was a source of great pleasure to feel that his last days were peaceful and that the honors he so richly deserves had been restored to him. W. P. C.

#### ST. BARTHOLOMEW'S HOSPITAL.

IN another column of this issue of the JOURNAL we publish a communication from one of our special foreign correspondents, to which we wish to call attention, narrating the recent experiences of an American medical student, a Rhodes scholar, at St. Bartholomew's Hospital, London, during the present war. This letter pictures vividly the modern conditions of this ancient institution and recalls its past in a way that contrasts strikingly with the circumstances of today.

In this connection we may call attention also to the Rede lecture, founded by Sir Robert Rede, a chief justice of common pleas in the reign of Henry VIII, to be delivered annually at the Senate house in Cambridge, England. On May 6, 1915, this lecture was delivered by Dr. Norman Moore on the subject of "St. Bartholomew's Hospital in Peace and War." Dr. Moore emphasized particularly the frequent experi-

ences of war which have fallen to the lot of this oldest of London hospitals:

"The first warriors known to have come into any relation with the hospital were the witnesses of a charter of Henry I, who afterwards took part in the wars of Stephen's reign. The next contest in which some of the actors came into the affairs of the hospital was that which ended in the grant of Magna Charter. The war between France and England at the end of the reign of John and the beginning of that of Henry III was connected with the subsequent tumults in London, which ended in the execution by Hubert de Burgh of Constantine Fitz-Alulf. Constantine himself, as he spent his last night in the Tower, in August, 1222, apprehensive of danger, but not knowing he was to die next day, most likely drew up the charter of benefaction to St. Bartholomew's, of which a copy had been preserved. In the following century the staff of St. Bartholomew's saw Wat Tyler's mob in Smithfield. Wat himself was pulled through the hospital gate as he was dying. The first hospital steward after the Restoration had fought in the defence of Basing House, and some wounded sailors of the second Dutch war were taken into the wards."

During the present European War, St. Bartholomew's has well lived up to its reputation for patriotic service, since it provides constantly over 200 beds for wounded soldiers, and as the School has contributed over 1000 men who have held commissions in the combatant or medical services.

#### LONGEVITY OF PHYSICIANS.

It is generally supposed, not without reason, that physicians, on account of the exposure, hard work and irregular hours incident to their profession, are likely to have a lower death age than that of other, more sheltered occupations. Recently, however, there have appeared several instances in which physicians have attained extreme longevity, which may to some extent counterveil this popular impression.

The late Dr. James Lloyd Wellington, who for several years had been not only the oldest living alumnus of Harvard College and of the Harvard Medical School, but the oldest practising physician in the United States, was ninety-eight years of age at the time of his death on February 11, 1916. The present oldest living graduate of Harvard is Dr. Nicholas Emery Soule, who was born at Exeter, N. H., on June 13, 1825. He was graduated from Phillips Exeter Academy in 1842 and received from Harvard the

degree of A.B. in 1845, and that of A.M. in 1848. He studied medicine at the University of Pennsylvania, from which he received the degree of M.D. in 1851. He settled as a practitioner at Cincinnati, Ohio.

It is even more interesting and remarkable that the next two senior graduates to Dr. Soule are also physicians, Dr. Samuel Franklin Coues of Cambridge, Mass., who was born on September 17, 1825, and Dr. Abner Little Merrill of Boston, born on January 23, 1826. Dr. Coues is the only surviving classmate of Dr. Soule in the class of 1845 and Dr. Merrill is the only survivor of the class of 1846. Dr. Coues received the degree of M.D. from the Jefferson Medical College in 1849, and Dr. Merrill received his in the same year from the Harvard Medical School, of which he is now the senior living alumnus. This remarkable trilogy of venerable physicians is unusual evidence that longevity is not incompatible with the profession of medicine.

#### MEDICAL NOTES.

**HEALTH OF NEW YORK CITY.**—According to figures prepared by the Department of Health, the health of the city was considerably better during the past week than during the corresponding week of last year. The decrease in the death rate meant a saving of 309 lives. In other words, had the death rate of the corresponding week of last year prevailed during the past week, 1,983 persons would have died, whereas only 1,674 died during the week. This is equivalent to a rate of 15.63 per thousand of population in contrast to the rate of 18.51 during the corresponding week in 1915.

The death rate for the first fifteen weeks of 1916 was 15.64 as compared with 15.50 for the corresponding period of last year. Considering the very unfavorable climatic conditions prevailing this spring, and the outbreak of grip in January, this is not a bad showing.

**MONTCLAIR BOARD OF HEALTH.**—The twenty-first annual report of the Board of Health of Montclair, N. J., records a death rate for the town of 9.8 per 1000 inhabitants, which is the lowest with one exception, during the past thirty years. As the chief causes of death, organic diseases of the heart ranks first, with tuberculosis of the lungs and Bright's disease ranking second and third, respectively. Pneumonia follows, with cancer as fifth leading cause. The birth rate for the year was 20.8. The infant mortality rate, 65, was but one point above the lowest on



record, and was 19 points below that of the year 1914. This rate means that only 65 infants died in Montclair per 1000 births, compared with a rate of over 100 deaths per 1000 births in the country at large. There was one case of poliomyelitis during the year.

**NEW YORK DEATH RATES.**—The Health Department reports that 1624 persons died week before last in New York City, a rate of 15.16 per 1000 of population, as compared with 1750 deaths and a rate of 16.70 for the corresponding week of last year. This difference in the weekly rate is equivalent to a saving of 165 lives. In other words, if the death rate for the corresponding week of last year prevailed during that week, 165 more persons would have died. This saving of life has been effected through the reduction of the number of deaths from the following causes: heart disease, influenza, bronchitis, lobar pneumonia, broncho-pneumonia, pulmonary tuberculosis and other tuberculous diseases. The acute contagious diseases, on the other hand, showed a slight increase over the corresponding week of last year and over the previous week of this year, as did also the number of deaths from nephritis, diseases of the nervous system and violence.

Despite the good health conditions prevailing during the past few weeks, the death rate for the first 13 weeks of 1916 was 15.66, as compared with 15.12 for the first 13 weeks of 1915, the higher figures this year being due to the epidemic of grip in January. In spite of the handicap, however, health officials expect to reduce the city's death rate below that of last year.

**SAPONIN BARRED FROM FOOD PRODUCTS.**—The addition of saponin to food mixtures, which are sold for use in place of white of eggs, is regarded by the Bureau of Chemistry of the Department of Agriculture as constituting adulteration within the meaning of the Food and Drugs Act. In "Service and Regulatory Announcements No. 17" it is stated that the practice is usually adopted for the purpose of concealing inferiority and that, therefore, it comes within the definition of adulteration in the Food and Drugs Act. Saponin is used extensively in so-called substitutes for white of egg for the purpose of producing foam, and thus giving the articles a fictitious appearance of body and, therefore, of food value.

Saponin is a substance that when dissolved in water foams like soap. It is extracted from plants known as soapbark and soaproot, and a few other plants, by boiling them in water. When saponin is added to the so-called substitutes for white of eggs, it produces a foam similar in appearance to the foam produced by genuine white of egg.

**ST. LAWRENCE STATE HOSPITAL.**—The twenty-ninth annual report of the St. Lawrence State

Hospital, Ogdensburg, N. Y., records the work of that institution for the year ended September 30, 1915. A total of 2483 insane patients have been under treatment during the year, 435 of this number having been admitted in this time. Of the discharges, 78 were pronounced recovered, 35 as much improved, and 53 as improved. The number of patients paroled during the year was 253. The provisional diagnosis given of the cases admitted is summarized as alcoholic, 6.7%; dementia paralytica, 8.5%; dementia precox, 15.2%; manic-depressive, 17.01%; and senile, 9.79%. In October, 1914, a case of pellagra developed in the hospital, the first case reported in Northern New York. The patient subsequently died.

**OPEN-AIR SCHOOLS.**—It has been computed that more than two hundred open-air schools and classes for tuberculous and anemic children were in operation at the opening of the last school term. Massachusetts leads the list with 86, 80 of them in Boston; New York has 29 and Ohio 21. The first school of this kind was opened in 1907. The idea seemed to spread slowly, for in 1910 there were but thirteen in use. It is estimated that there should be, in the cities, one open-air school for every 25,000 population.

**LOOMIS SANATORIUM.**—The Loomis Sanatorium of Liberty, N. Y., for the treatment of tuberculosis, reports that during its past fiscal year it has treated 137 patients. Of this number, 93 were discharged, 31.08% being considered apparently cured, 22.97% quiescent, 9.46% improved, 32.44% unimproved, 4.05% dead.

**FOOT AND MOUTH DISEASE.**—Report from Washington, D. C., states that on March 31 the United States Secretary of Agriculture issued an order removing all quarantines against foot and mouth disease and all restrictions against the shipment and movement of livestock throughout the United States. This action marks the official conclusion of the extensive epizootic of this disease that has prevailed during the past year.

"The order signed specifically removes the quarantine from a small territory in Christian County, Illinois, the last area which was under suspicion. Along with the removal of this local quarantine, the various federal orders restricting shipment of cattle are rescinded, so that dealers can now ship their cattle as before the first quarantine was imposed. Upon notification that the United States is free from the disease, all foreign governments which have placed embargoes on American cattle are expected to remove these embargoes, so that cattle raisers will be able to resume shipments to these foreign countries.

"As a result of better understanding between the state and national governments, representa-

tives of the department believe that many of the obstacles which confronted the authorities in the past outbreak would not be encountered in dealing with any future occurrence of the disease. The veterinarians, however, will not abate their watchfulness for some time. Examination of animals and animal products offered for import will continue to be unusually strict. The department, moreover, particularly urges all farmers and cattle handlers to notify their state veterinarians and the department of any suspicious cases of sore mouth combined with lameness in their animals."

**PREVALENCE OF MENINGITIS, SMALLPOX, AND TYPHOID FEVER.**—The weekly report of the United States Public Health Service for March 24, states that during the month of February, 1916, there were reported in Massachusetts 19 cases of cerebrospinal meningitis and 44 of typhoid fever. During the same period there were in Wisconsin 11 cases of meningitis, 133 of smallpox and 153 of typhoid. In Minnesota there were 47 cases of typhoid and 141 of smallpox.

**INFLUENZA EPIDEMICS.**—The recent epidemic of influenza has given rise to investigations as to the antiquity of the disease. Some authorities have traced its incipience to 400 or 500 B.C. It has not been difficult, however, to discover pandemics in the Middle Ages, one authority computing about 90, running back to the 12th century, with a well-recognized one in 1510. There seem to be centers in which the infection is preserved, such as remote portions of Asia and Russia, the history of some epidemics pointing to a focus in Northwestern Canada. From time to time the disease breaks loose and spreads both east and west. The epidemic of 1889-90 came to notice in Russia, and in less than a year had spread from Germany to France and throughout Europe, to North America. By March it had reached India and Australia, and by April or May, China and the Gold Coast of West Africa.

**PLAGUE PREVENTION BY THE UNITED FRUIT COMPANY.**—The eradication of rats for the prevention of plague is of necessity carried on with vigor by the United Fruit Company, in its various tropical stations. The rules of the company, at New Orleans, are that all ships shall be breasted off six feet while discharging and loading cargo. No communication with shore is permitted, except that absolutely necessary for the handling of the cargo. Only the captain and purser are permitted ashore. At Costa Rica, 1799 rats have been trapped and poisoned during the year. All rats caught in the vicinity of the wharf are immersed in kerosene and sent to the laboratory for examination. At Tela, Honduras, the company's houses are built to keep them as free as possible from rats, and

the town proper is but slightly infested with them. On some of the farms, rat pits are dug to catch these animals. These are about three feet deep, with smooth sides, and from six to eight dead rats are caught in them daily.

**CONVENTION OF SOCIETIES FOR MENTAL HYGIENE.**—The second convention of societies for mental hygiene was held on April 3 and 4, at New Orleans, under the auspices of the National Committee for Mental Hygiene and the Louisiana Society for Mental Hygiene. At the opening session on the afternoon of April 3, there were addresses by Dr. Edward M. Brush, president of the American Medico-Psychological Association; Dr. Frankwood P. Williams, executive secretary of the Massachusetts Society for Mental Hygiene, and others. Dr. Williams considered the question how societies for mental hygiene can best carry out educational publicity. At the evening session on that day there were addresses by Dr. William A. White, on the aims of mental hygiene; by Professor John M. Fletcher, on the relation of mental hygiene to education; and by Dr. Thomas W. Salmon, on the main features of a program for provision for the feeble-minded. At the morning session, on April 4, the societies for mental hygiene in Alabama, California, the District of Columbia, Louisiana, Massachusetts and Rhode Island presented reports on their work during the past year. The evening meeting of that day was held in conjunction with the 72d annual meeting of the American Medico-Psychological Association. Dr. Elmer E. Southard of Boston discussed the place of mental hygiene in preventive medicine, and Dr. William L. Russell of New York considered the function of hospitals for the insane in the advance of mental hygiene.

**AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.**—At the annual meeting of the American Medico-Psychological Association held in New Orleans on April 5, Dr. Charles G. Wagner of Binghamton, N. Y., was elected president for the ensuing year.

**PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.**—The weekly report of the United States Public Health Service for March 31 states that during the month of February, 1916, there were reported in Mississippi 4272 cases of malaria, 331 of pellagra and 214 of typhoid fever. During the same period there were reported in Ohio 16 cases of cerebrospinal meningitis, 201 of smallpox and 171 of typhoid. There were 11 cases of poliomyelitis each in Mississippi and Virginia. There were 280 cases of smallpox in Kansas, 85 in Michigan and 63 in California.

#### EUROPEAN WAR NOTES.

**SCOTTISH RED CROSS HOSPITAL SHIP.**—It is announced that the Scottish Red Cross Hospital

ship, *St. Margaret of Scotland*, a 2300-ton vessel, originally employed in the West Indian Intercolonial Mail Service, after reconstruction under the superintendence of the admiralty, is now ready and destined for service in Eastern waters. The cost of her remodeling, which was about \$100,000, has been defrayed by the Scottish Red Cross. The *St. Margaret* has accommodation for 92 patients in seven wards, named Clyde, Forth, Tay, Tweed, Dee, Spey, and Door, after the seven largest rivers of Scotland. There is also room for the accommodation of over 80 emergency cases in hammocks.

**WAR RELIEF FUNDS.**—On April 15 the totals of the principal New England Relief Funds for the European War reached the following amounts:—

Belgian Fund .....	\$112,064.67
Allied Fund .....	77,048.15
French Wounded Fund ..	69,422.64
French Orphanage Fund ..	38,209.09
Surgical Dressings Fund ..	23,062.17
Italian Fund .....	17,014.31
French Refugees Fund ...	8,526.50
P. S. D. Fund .....	7,922.73
Cardinal Mercier Fund ..	3,523.00
Brittany Fund .....	2,287.95

#### BOSTON AND NEW ENGLAND.

**THE CLEAN MILK BILL.**—Dr. Charles F. Withington, President of the Massachusetts Medical Society, would be very glad if all doctors of the State would immediately get in touch with their representatives and senators and ask them to vote for the McLaughlin Clean Milk Bill. The Bill gives the State Department of Health the right to pass state milk regulations. These regulations are to be enforced by local boards, but if the local boards fail to enforce them, or upon their request, the State Department of Health will enforce them. A grading system, based on sanitary differences in milk and the conditions of milk production, may be established under the Bill, but it is optional with the local boards whether grading shall be established in their departments or not. The matter of Pasteurization is also left to the local boards. For the protection of producers, no regulations can be effectual unless approved by the Governor and Council after a hearing. A great many interests have approved the bill, including the executive committee of the Grange.

**THE WEEK'S DEATH RATE IN BOSTON.**—During the week ending April 15, 1916, there were 242 deaths reported, with a rate of 16.59 per 1000 population, as compared with 289 and a rate of 20.13 for the corresponding week of last year. There were 42 deaths under 1 year, as compared with 51 last year, and 82 deaths over 60 years of age against 85 last year.

During the week the number of cases of principal reportable diseases were: Diphtheria, 68; scarlet fever, 52; measles, 168; whooping cough, 45; typhoid fever, 4; tuberculosis, 69.

Included in the above were the following cases of non-residents: Diphtheria, 15, scarlet fever, 6; typhoid fever, 1.

Total deaths from these diseases were: Diphtheria, 5; scarlet fever, 3; whooping cough, 2; tuberculosis, 23.

Included in the above were the following deaths of non-residents: Diphtheria, 2; scarlet fever, 2; tuberculosis, 2.

**RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MARCH, 1916.**—Measles, whooping cough, scarlet fever and diphtheria continue to be the prominent factors in the communicable disease reports. All of these diseases show a tendency to decrease, except measles. From past experience with this disease, we can probably expect it to continue to spread during April and May. The total number of cases of communicable diseases reported to this department during March was considerably greater than during February, but about the same as those reported for March of 1915. The comparatively large number of communicable diseases reported are due to the continued spread of measles to new territory.

The distribution of the various communicable diseases shows some interesting facts. Measles has been prevalent for several months in the Northeastern Health District, with the point of intensity at Lynn. Chelsea, Saugus and Winthrop have had a considerable number of cases. In this area the infection seems to be decreasing. In the Eastern Health District there has been a rapid increase of cases since the middle of February. Brockton and Whitman seem to be the center of this focus of infection. With the exception of Worcester and Springfield, epidemic measles is confined to the above-named health districts.

Whooping cough is not decreasing in amount. Study of the records shows that it has been present with little variation since January, 1915. It is well distributed all over the state. In the following cities and towns it is above the average for that city or town: Bourne, Middleborough, Rehoboth, Brookline, Cambridge, Andover and Springfield.

Scarlet fever is decreasing. This is true in comparison with February and also in comparison with March, 1915. However, in the following cities and towns it is still prevalent in unusual amounts: Braintree, Brookline, Norwood, Quincy, Chelsea, Lynn, Needham, Warren and Montague.

Diphtheria is still well distributed over the state. It is decreasing in amount. It remains an important factor in the returns from the following cities and towns: Attleborough, Cambridge, Norwood, Malden, Newbury, Lawrence,

Woburn and Pittsfield. It is to be noted that in a number of places the reports for diphtheria include "carriers" discovered in the course of routine school examinations.

As usual, tuberculosis heads the list as the causes of death, with 277 deaths during March.

Diphtheria caused 42 deaths during last month. This is a considerable decrease over the same disease for the month of February. The fatality rate was 6.2. This is unusually low.

Whooping cough continues to take an unusual number of lives. With 927 reported cases there were 21 deaths. This gives a fatality rate of 2.3, and does not account for the complications and sequelae.

Measles accounted for 16 deaths during March. These are only those deaths actually reported as being caused by measles. A study of the death certificates reveals the fact that a great number of deaths reported as being caused by pneumonia are really caused by measles. Notwithstanding the monthly record of deaths caused by measles, directly or indirectly, people continue to consider it a "harmless" disease.

Scarlet fever caused 9 deaths last month. The fatality rate was 1.1. Considering the fatality rate for the same month last year, this disease was only one-half as fatal.

Typhoid fever continues to show a gratifying decrease in amount. While it caused a total of only 8 deaths during March, the fatality rate was unusually high—16.0. This unusually high fatality rate may be due to a failure in reporting cases.

The only epidemic of note is the one now in progress at Brockton and Whitman. In this case it is measles. Brockton authorities are making earnest efforts to control the infection.

There have been 3 cases of trichinosis reported during March in the following cities: Springfield, Chelsea and Haverhill. Pellagra has been reported from the following places: Danvers, Newton, Northampton and Boston.

There has been a sharp outbreak of anthrax, principally in Winchester and Woburn, with isolated cases at Chelsea and Somerville. An investigation of this outbreak is in progress and a complete report will be published later.

#### NEW CONVALESCENT HOME AT NEWPORT, R. I.

—On June 1 there will be opened at Newport a home for woman convalescents, of a type for which there seems to be a distinct need. It is primarily to afford an opportunity for recuperation, under nursing by graduates, to patients of only moderate means, for whom there is at present practically no adequate provision. As it is the purpose of the founder merely to keep the institution self-supporting, the charges will be correspondingly low. At first there will be available some fifteen beds. It is hoped that this modest undertaking will prove a great success.

**DENTAL REGISTRATION IN MASSACHUSETTS.**—It is announced that of 128 applicants who took the recent examination for dental registration in this state, only 34 were passed, among whom were three women candidates.

**SOCIAL SERVICE IN HOSPITALS.**—In last week's issue of the JOURNAL we noted the meeting held on April 6 in the interest of the social service department at the Boston City Hospital. The principal addresses at this meeting were made by Dr. Alexander Lambert, director of social service at the Bellevue Hospital, New York; by Miss Gertrude Farmer, who occupies a similar position at the Boston City Hospital; and by Dr. George G. Sears, president of the City Hospital Senior Staff. Dr. Lambert referred particularly to the value of social service in securing better results from treatment in cardiac cases following the discharge of the latter from hospitals.

"In the children's department the work has been particularly effective. All children born at Bellevue are followed up for a full year after their mothers are discharged. They get a good start in life. Their mothers are instructed in the proper care of infants, particularly in regard to the right kind of food. Also every child now coming to Bellevue for treatment gets an opportunity to live in the country during convalescence. One of the important effects the department has, I think, is the prevention of destitution among the families of bread winners confined to the hospital through sickness."

**MASSACHUSETTS SCHOOL FOR THE FEEBLE-MINDED.**—The sixty-eighth annual report of the Trustees of the Massachusetts School for the Feeble-Minded, at Waltham, states that for the year ended November 30, 1915, the population of the institution was 1740 inmates. This includes the colony at Templeton. There were 228 admissions, of whom 75 were under fourteen years of age, and capable of being taught to read and write; 15 were under fourteen years of age, and were improvable, but not capable of being taught to read and write; 59 were males over fourteen years of age; 44 were females over fourteen years of age; 7 were cases of spastic paralysis; 7 were epileptic; 9 were of the Mongolian type of idiocy; and 2 were cases of sporadic cretinism. Three cases of pellagra have been recognized among the patients. The out-patient work of the school has greatly increased. A clinic is held at the school at Waverley every Thursday. Monthly clinics are held in connection with the school authorities in Fall River, Worcester and Haverhill, and it is planned to open others at Framingham, Waltham and New Bedford.

#### METROPOLITAN DISTRICT DENTAL SOCIETY.

—The fifty-first annual meeting of the Metropolitan District Society of the Massachusetts Dental Association was held in Boston on April 3



with about seventy members in attendance. The principal address was delivered by Dr. Frank A. Delabarre on "Orthodontia." Dr. Roy C. Skinner was elected secretary and Dr. Waldo E. Boardman treasurer for the ensuing year.

**CUTTER LECTURE.**—The annual Cutter Lecture, on "Preventive Medicine and Hygiene," was delivered at the Harvard Medical School on Monday, April 3, by Dr. George W. McCoy, director of the Hygienic Laboratory of the United States Public Health Service. This lecture is given under the terms of a bequest from John Clarence Cutter. Dr. McCoy, formerly superintendent of the leper colony on the Island of Molokai, Hawaii, selected as his topic, "The Public Health Aspects of Leprosy." He pointed out that the laws compelling the isolation of persons suffering from non-contagious types of leprosy are founded on fallacy and superstition, and that such persons should be exempted from isolation. Of the vaccine treatment of the disease, he said that, owing to the great chronicity of untreated leprosy, many years must elapse before definite results from vaccine treatment can be determined. It is hoped that this lecture may later be published in full in the JOURNAL.

**INVESTIGATION OF NON-PULMONARY TUBERCULOSIS.**—There is at present pending before the Massachusetts General Court, a resolve introduced by Dr. Richard C. Cabot, providing for an investigation, by the State Department of Health, of non-pulmonary tuberculosis, which is believed to be on the increase in the community. At a recent hearing on this resolve before the house committee on ways and means, Chairman Hart of the committee of public health, advocated the segregation of non-pulmonary, as of pulmonary, tuberculosis, for the safeguarding of the community.

**HOSPITAL BEQUESTS.**—The will of the late Richard N. Sturtevant of Somerville, Mass., who died on March 28, contains a bequest of \$1000 to the Somerville Hospital.

The will of the late Mary Forbes Russell of Milton, Mass., which was filed for probate on April 7 at Dedham, contains bequests of \$5000 each to the Harvard Dental School and the Milton Convalescent Home.

**NORFOLK STATE HOSPITAL.**—The second annual report of the Trustees of the Norfolk State Hospital was issued on April 7.

"The trustees report that building and appurtenances, which will cost \$93,500, are nearing completion, but that a further appropriation of \$54,500 for construction is necessary in the near future.

"The institution was originally planned to be a hospital unit with 500 beds. When the present buildings are occupied there will be 400 beds.

With an average of 232.66 patients during the year, the weekly per capita cost was \$10.88. The trustees estimate that with an average of 350 patients during the coming year the weekly per capita cost will not exceed \$7.25. If the hospital unit could be completed along the lines it was originally planned, the trustees believe the weekly cost per patient would decrease to \$5.95.

"The trustees urge that a dormitory to accommodate 100 confirmed inebriates be built.

"The report of the superintendent shows that a total of 4051 patients have been treated since April, 1909, by the Norfolk Hospital, and its predecessor, the Foxboro Hospital. Of those, 153 have died, 49 are insane, and 1738 have moved from their last recorded address.

"Of the remaining 2111, 944 are abstinent, 235 are improved, drinking some, but earning their living, and 932 are unimproved and not permanently benefited.

"The trustees again recommend an appropriation for a building for women patients."

**BOSTON HOSPITAL UNITS.**—In conjunction with the work of preparation recently undertaken by the United States War Department, by way of organizing the civil hospitals of the country in such a way as to make them available for military purposes in the event of war, three hospital units have been established in Boston, one at the Massachusetts General Hospital under the command of Dr. Frederick A. Washburn, one at the Boston City Hospital, and one at the Harvard Medical School. Each of these units is to be prepared to handle five hundred patients, and its staff of two hundred will include surgeons, physicians, dentists, nurses, orderlies and cooks. All members of a unit pledge themselves to answer a call to service within two years, to go to any point in this country or on foreign soil at the command of the war department. The unit at the Harvard Medical School is under command of Dr. Harvey Cushing. Dr. Washburn is in chief command of the Massachusetts General Hospital unit, with Dr. Richard C. Cabot as director of the medical section, Dr. George W. W. Brewster of the surgical section, and Dr. J. Homer Wright of the laboratory section.

Under Dr. Cabot are Drs. George S. C. Badger, A. Watson Sellards, George Clymer (neurologist), Paul D. White, James H. Means and Wade S. Wright. Under Dr. Brewster are Drs. Lincoln Davis, Z. B. Adams (orthopedist), Beth Vincent, William J. Mixter, Ralph A. Hatch (oculist), Elliott C. Cutler, Arthur W. Allen, George A. Leland, Jr., and L. M. S. Miner (dentist). Under Dr. Wright are Drs. Roger Kinnicutt (bacteriologist) and Walter J. Dodd (roentgenologist).

Miss Sara E. Parsons, superintendent of nurses of the Massachusetts General Hospital, will be chief nurse; and Miss Mary E. Reed, dietitian of the McLean Hospital, will be dietitian.

**MONSON STATE HOSPITAL.**—It is announced that, under the auspices of the trustees and with the approval of the State Board of Insanity, the Monson State Hospital, at Palmer, Mass., is planning to hold, on May 4, a review of the twenty years' work of that institution. To this review each member of the staff will contribute papers, which will be read by title. The clinical and laboratory work in progress will be reviewed and an effort made to gather all who have contributed largely to the success of the hospital. There will be a morning meeting devoted to general considerations and an afternoon meeting devoted to medical papers. Invitations have been extended to members of the Association for the Study of Epilepsy and Feeble-Mindedness, of the Boston Society of Psychiatry and Neurology, of the New England Society of Psychiatry, and to trustees of state institutions, including past and present trustees of the Monson Hospital.

The forenoon session will be devoted to matters of general consideration, inspection of departments of the hospital work, exhibits, demonstrations, illustrating some of the papers read by title, and preparations for the afternoon meeting, including a summary of researches in epilepsy, with special reference to Monson State Hospital.

Other papers will be presented by Dr. Stedman on the founding of the Monson State Hospital; by Dr. Owen Copp, on the history of its administration, and by Dr. C. W. Page, on the medical value of optimism. The papers presented and read by title at this meeting will be published later, in a group, to commemorate the occasion.

### Miscellany.

#### MEMORIAL RESOLUTIONS.

The following memorial to Dr. Silas A. Houghton was read at the last meeting of the Obstetrical Society of Boston, held March 28, 1916, and it was unanimously voted that the memorial be spread upon the records and a copy sent to the BOSTON MEDICAL AND SURGICAL JOURNAL.

ROBERT L. DENORMANDIE,  
*Secretary.*

SILAS A. HOUGHTON.

Impartial Death has once again chosen a shining mark; passing by fullness of years and gray hairs, and beckoning to one at the very acme of mental and physical powers, who still, in his heart, rejoiced in his youth.

Silas Houghton was a man of singular sweetness of character, delicacy of thought and method, modesty and gentleness. His habit of mind and body was of unusual temperance; his nature characterized by much tenderness and deep af-

fection. He did not manifest the aggressiveness of the fighter, but rather the unvarying courtesy which we like to associate with the chivalry of the Middle Ages. He apparently never made an enemy; a man is yet to be found who has heard another speak slightly or disparagingly of Dr. Houghton. Everyone regarded him as his best friend. In spite of this unusual combination of characteristics, there was never a trace in him of weakness, nor lack of determination or of latent power.

Dr. Houghton was a man, and a man's man as well. Professionally, he was an example to prove that the day of the good general practitioner is happily not yet past. In the age of unbridled specialism, Dr. Houghton maintained the tradition of the family practitioner of the old days, with the added essential of familiarity with all the best results of recent medical progress. He not only knew when to call a specialist to his aid, but equally well which particular specialist to call to the particular individual.

To his patients he was literally "the beloved physician"; to his associates, one whose judgment invariably commanded consideration and respect; to his friends, both professional and the lay, he represented the purest ideals of manhood and comradeship.

In his unexpected and all too early death, the Obstetrical Society suffers an unusual loss, which it hereby registers.

To his widow and children the Obstetrical Society offers an expression of the keenest appreciation and the deepest sympathy.

"Scarce had he need to cast his pride or slough the dross of earth.

E'en as he trod that day to God, so walked he from his birth,—

In simpleness and gentleness and honor and clean mirth!"

### Correspondence.

#### AN AMERICAN AT ST. BARTHOLOMEW'S HOSPITAL.

(From Our Special Correspondent.)

OXFORD, ENGLAND, February 28, 1916.

*Mr. Editor:* To an American St. Bartholomew's Hospital presents a strange spectacle. At first he is aware of the modern efficiency of the great institution as a hospital, dispensary and medical school. This, however, may be found in other hospitals than St. Bartholomew's and other places than London. It is the shadow of the past which makes it unique among the hospitals of today. For eight centuries St. Bartholomew's has been serving the people of London and its development is bound up with their changing fortunes.

It was founded in the year 1123 by a priest, Rahere by name, in accordance with a vow made by him, previously, at Rome where he had been told in a dream to get him to London and there found a hospital at Smithfield. He obtained a grant of the land, upon which the hospital still stands, from Henry I, and incorporated the hospital with a priory. This relation continued until the suppression of the monasteries

when the hospital, with its revenues, came into the possession of Henry VIII. In 1547 this monarch granted it a fresh charter and gave back most of its revenue with these words: "Considering the miserable estate of the poor, aged, sick, low, and impotent people, as well men as women, lying and going about begging in the common streets of the said City of London and suburbs of the same, to the great pain and sorrow of the same poor, aged, sick and impotent people, and to the great infection, hurt and annoyance of His Grace's loving subjects, which must of necessity goe and pass by the same poor, sick, low and impotent people, being infected with divers great and horrible sicknesses and diseases." The patients of this hospital must have looked out upon many strange sights in Smithfield Market. Here some hundreds of Protestants were burned at the stake by the order of Queen Mary, and later a similar fate befell non-conformists during the reign of Elizabeth. Here also William Wallace was beheaded and, according to tradition, Wat Tyler was struck down by the Lord Mayor of London. On the hospital staff have served such men as Harvey, the discoverer of the circulation of the blood, who, in 1609, was appointed physician to the hospital and retained this position over a period of 34 years.

Records show that at the time of granting its second charter by Henry VIII, there were 100 beds in the hospital. More than seven times that number are now provided and a convalescent home has been established at Swanley. In addition to this, St. Bartholomew's founded, several years ago in South London, a base hospital, to be used for wounded soldiers in case of war. There are at present 500 beds in this extension and preparations are rapidly being completed to accommodate another 500. One staff of doctors and laboratory men does the work in both places. One wing of the hospital itself, containing 270 beds has been turned over to wounded soldiers, each ward numbering 24 beds. Here I noticed a cross bar suspended by a strap over each bed so that, as in the military hospital trains, the patients may lift and move themselves more easily. The demand for nurses in the military hospitals is, at present, so great that probationers are admitted to training courses of shorter duration instead of the usual three years.

Within the last eight years several new buildings have been added to the group at a cost of over a million dollars. Of these buildings the out-patient department is especially well equipped and, until recently, 1000 cases, on an average, were treated here daily. This number has been reduced to about 700, because of the operation of the recent insurance act which assigns each insured man to a doctor. Unless the case is especially serious, these doctors attend the patients thus assigned to them, and in this way the out-patient departments of London hospitals have been relieved of many cases.

Among other things, St. Bartholomew's contains a very fine library, with reading rooms for students and doctors; also a museum, boasting the largest collection of pathological specimens in the United Kingdom. Recently, however, a large proportion of this collection has been stored away, probably below ground, to be safe from the bombs of hostile aircraft.

There were, at one time included within the walls of the hospital, four chapels. Of these, one, very quaint and ancient, remains, and here services are held regularly. Indeed the hospital is in itself a parish, a division of considerable importance here in England.

Although every ward and vacant room is filled with sick and wounded, the number of students is sadly depleted. In the anatomy room one sees a lonely group or two of students, while the lecture rooms are almost empty. In times of peace the Medical School numbers 400 students, being incorporated in the University of London, which grants degrees to the students. Arrangements are also made, however, for men taking Oxford or Cambridge degrees to receive

their clinical instruction here. A certain number of men are being continually sent back from the front and the navy to complete their medical courses. They are advanced students, but are not numerous enough to make up for those recently called out under the Derby scheme.

Sincerely yours,

W. G. P.

#### CAESAREAN SECTION: A REJOINDER.

Boston, Mass., March 31, 1916.

Mr. Editor: Dr. Kellogg in his article published in the *JOURNAL* of March 30 has, I think, given an erroneous impression in several points.

First: He has taken the position that operative labor has no maternal mortality. This is incorrect, as is shown in my paper in the same number of the *JOURNAL*. There is a tendency to compare unconsciously the results of Caesarean with those of normal labor, but in those cases where the alternatives are high-operative delivery or Caesarean section, there can be little doubt that the latter will give far better results for both mother and child.

Second: In regard to primiparous breech presentation, a breech presentation, as I have shown (*Interstate Med. Jour.*, 1915, xxii, 384), usually means lack of accommodation between fetus and pelvic inlet or uterine cavity. Unless this disproportion is that of relatively small size of fetus, delivery by the natural passages is attended by great risk for the child. In other words, one should try to determine in advance of labor which of the primiparous breech cases are going to fall within the 10% in which the baby is likely to be lost and perform Caesarean section.

Third: In regard to one Caesarean necessitating future deliveries by the same method because of the danger of rupture of the scar, Mason and the writer have shown (*Boston Med. and Surg. Jour.*, 1910, cxlix, 65), by experimental work in animals, that a properly sutured scar, which has healed without infection, is not a weak point in the uterine wall, and I have recently reported (*Amer. Jour. Obst.*, March, 1916) two cases delivered by the natural passages after a previous Caesarean without untoward effects. In one of these I did both the Caesarean and the intrapelvic delivery myself, and the convalescence from the Caesarean was infinitely easier than that from the high forceps delivery which followed.

Fourth: Dr. Kellogg gives the impression that patients, upon whom Caesarean section has been performed, frequently suffer from after-effects. This is certainly rare, whereas a very large proportion of women, who have had hard intrapelvic deliveries, complain of lacerations and loss of support for the relief of which many have to undergo operation.

Fifth: Pubiotomy, as is almost generally admitted, is contra-indicated in infected cases, and therefore should not be performed upon neglected patients.

Finally: Dr. Kellogg has said nothing about the birth paralysis and cerebral injury which sometimes follow hard operative deliveries with intracranial hemorrhage in which the baby succeeds in living, a burden to itself, its parents, and the community. A dead baby is buried, but these live, a reproach to obstetricians.

I agree with Dr. Kellogg in condemning the reckless performance of Caesarean section without proper study of the individual case, but I cannot subscribe to his sweeping denunciation of the operation for suitable indications.

Very truly yours,

JOHN T. WILLIAMS, M.D.

# UNITED STATES CIVIL-SERVICE EXAMINATION.

CHIEF STATISTICIAN FOR VITAL STATISTICS (MALE),  
\$3000. APRIL 25, 1916.

The United States Civil Service Commission announces an open competitive examination for Chief Statistician for Vital Statistics, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of the Census, Department of Commerce, Washington, D. C., at a salary of \$3000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The Chief Statistician for Vital Statistics is the administrative and statistical head and has full charge of the work of the Division of Vital Statistics. He supervises the collection of transcripts of certificates of births and deaths, the tabulation and compilation of the statistical items on these transcripts, and the outlining and presenting of these statistics in the form of annual reports; he aids in securing enactment of efficient laws for the registration of births and deaths, both by correspondence and, if necessary, by appearing before state legislatures and committees thereof; he supervises the investigation of the completeness of the registration of deaths in cities and states which are not now in this registration area but which have requested admission thereto, and makes such recommendations to the Director of the Census in regard to their admission as the results of the investigations justify; he is expected to attend the meetings and conventions of medical and statistical bodies, such as the American Medical Association, the American Public Health Association, and the American Statistical Association.

Graduation from a recognized medical school and at least four years' experience in charge of the vital statistics of a city or a state or in a position of similar importance requiring expert knowledge of vital statistics are prerequisites for consideration for this position.

Statements as to education, experience, and fitness are accepted subject to verification.

Applicants must have reached their thirtieth but not their fiftieth birthday on the date of the examination.

Under an act of Congress applicants for this position must have been actually domiciled in the state or territory in which they reside for at least one year previous to the date of the examination.

This examination is open to all men who are citizens of the United States and who meet the requirements.

Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Post Office, Boston, Mass.; Philadelphia, Pa.; Atlanta, Ga.; Cincinnati, Ohio; Chicago, Ill.; St. Paul, Minn.; Seattle, Wash.; San Francisco, Cal.; Customhouse, New York, N. Y.; New Orleans, La.; Honolulu, Hawaii; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R. Applications should be properly executed, excluding the medical certificate, but including the county officer's certificate to which a 10-cent internal-revenue stamp must be attached, and filed with the Commission at Washington prior to the hour of closing business on April 25, 1916. Those meeting the preliminary requirements, as shown in connection with their applications, will be furnished with a special form and material, which must be submitted to the Commission

prior to the hour of closing business on May 16, 1916. The exact title of the examination as given at the head of this announcement should be stated in the application form.

## NOTICE.

THE CUTTER LECTURE on preventive medicine and hygiene, by Simon Flexner, M.D., Director, Rockefeller Institute for Medical Research, on "The Finer Adjustments of the Immunity Reactions to Recovery from Infection," will be given Wednesday, April 26, 1916, at the Harvard Medical School, from 5 to 6 P.M.

## SOCIETY NOTICES.

NEW ENGLAND SOCIETY OF DERMATOLOGY AND SYPHILIS.—The next meeting of the Society will be held at the Boston City Hospital on Tuesday, April 25, at 3.30 P.M., in the Surgical Out-Patient Building. The medical public is cordially invited to attend.

CHARLES J. WHITE, M.D., Secretary.

PETER BENT BRIGHAM HOSPITAL.—There will be a medical meeting in the amphitheatre of the Peter Bent Brigham Hospital, on Tuesday evening, April 25, at 8.15 o'clock.

### PROGRAM.

1. Exhibition of cases.
2. The Value of the Roentgen-Ray in the Diagnosis and Better Understanding of Pulmonary Tuberculosis. Dr. Fred H. Helse and Mr. Homer L. Sampson of the Adirondack Cottage Sanitarium, Saranac Lake, N. Y. Discussion by Dr. E. A. Locke, Dr. V. Y. Bowditch, Dr. Gladys L. Carr and Dr. Walter J. Dodd.

Medical students and physicians are cordially invited. Telephone Brookline 5200. Any visitors may be on telephone call if their names are left at the front office of the Hospital.

There will be a special medical meeting in the amphitheatre of the Peter Bent Brigham Hospital, on Wednesday evening, April 26, at 8.15 o'clock.

### PROGRAM.

Achievements and Opportunities of Medical Work in The Near and Far East.

#### SPEAKERS:

Dr. Charles W. Elliott, President-emeritus of Harvard University.

Dr. Francis W. Peabody, of the Peter Bent Brigham Hospital, and member of the China Medical Board of the Rockefeller Foundation.

Dr. Ardian S. Taylor, of Yangchow, China.

Dr. Harvey Howard, of Canton China.

Dr. Alden R. Hoover, of Pala, Turkey.

Medical students and physicians are cordially invited. Telephone Brookline 5200. Any visitors may be on telephone call if their names are left at the front office of the Hospital.

## APPOINTMENTS.

Dr. Frank Billings, of Chicago, has been appointed visiting lecturer on medicine at Harvard University. Dr. Stanley H. Osborn has been appointed district health officer by the Massachusetts State Department of Health.

The board of health of Tuscaloosa, Ala., has appointed A. F. Allen as assistant health officer. Since his graduation from Harvard Technology School for Health Officers, Mr. Allen has been connected with the health work of Waltham, Mass., and with the epidemiological work in Fitchburg, Mass.

Alfred W. Bosworth, S.B., associate chemist at the New York Agricultural Experiment Station, has been appointed biological chemist for the Boston Floating Hospital.